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ABSTRACT

Early identification of psychosocial problems and early intervention with cancer patients can be beneficial to patient rehabilitation. This report focusses on: (1) developing and implementing an effective "model program" of psychosocial intervention for adult cancer patients; (2) evaluating the impact of intervention in ameliorating cancer patients' psychosocial problems; (3) developing procedures for documenting intervention; and (4) developing predictive criteria for patients who are psychosocially "at risk." A retrospective study of 136 cancer patients whose psychosocial problems were systematically surveyed yielded findings which were used to develop, implement and evaluate a psychosocial intervention model. (Author/BMW)

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Final Report

"Demonstration of Benefits of Early Identification of Psychosocial Problems and Early Intervention Toward Rehabilitation of Cancer Patients"

(National Cancer Institute Contract #NO1-CN-55188)

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Final Report

"Demonstration of Benefits of Early Identification of Psychosocial Problems and Early Intervention Toward Rehabilitation of Cancer Patients"

Phase I: Retrospective Study
Phase II: Prospective Intervention Study

Executive Summary

Purposes

1. Develop and implement an effective "model program" of psychosocial intervention for adult cancer patients

2. Evaluate the impact of this psychosocial intervention program in ameliorating the psychosocial problems of cancer patients

3. Develop procedures for documenting the process of intervention

4. Develop criteria for predicting those who are "at risk" for developing psychosocial problems later in the course of the disease

Method

This study was divided into two phases. Phase I was a retrospective study of 136 cancer patients whose psychosocial problems were systematically surveyed. The findings of Phase I were used in developing a psychosocial intervention program which was implemented and evaluated in Phase II of the study. In Phase II, 308 individuals with cancer of the breast (N = 98), lung (N = 83) and skin (melanoma) (N = 127) were assessed within 48 hours of their initial cancer-related hospital admission. Half of the patients were evaluated and then received a systematic program of psychosocial rehabilitation (intervention group), while the remaining half only received psychosocial evaluation (control group). The evaluations consisted of a series of psychometric tests and problem oriented structured clinical interviews that were developed by project staff and were pretested in Phase I. The interviews assessed 13 areas (122 problems) of psychosocial functioning that were syntonic with the concerns of cancer patients. These evaluations were administered to all patients at four points in time: within 48 hours of hospital admission (T1); at hospital discharge (T2); three months post-discharge (T3) and six months post-discharge (T4).

Psychosocial intervention was dependent on patient need and ranged from the minor (e.g., arranging for a service referral to an outside agency) to the complex (e.g., dealing with poor marital relations or miscommunication between physician and patient). All problems treated and interventions employed were documented and tracked using problem oriented records. Patients were usually seen individually by a single "oncology counselor" who continued to see the patient over the six month program. During the course of hospitalization patient contacts were made daily. Post-discharge contacts were

less frequent and dependent upon need. All patients were periodically contacted by telephone in order to ascertain their need for psychosocial intervention.

Results*

1. Assessment instruments were developed which were sensitive to the course of psychosocial treatment of the cancer patient.

   - The majority of difficulties reported by patients during assessment were treated by the intervention staff.

   - Psychosocial interventions were focused on those problems that were most intensely experienced by patients.

2. Psychosocial intervention improved the adjustment of cancer patients.

   - Psychosocial intervention effectively ameliorated some of the psychosocial problems that were reported by patients.

   - 85% of those in the intervention group who were working at hospital admission had returned to work by T4. In contrast, this was true for only 67% of the control patients.

   - There was an increase in the frequency of solitary activities (TV watching, napping) in the control group.

   - Rates of recovery from heightened levels of negative affect (anxiety, hostility and depression) were accelerated in the intervention group, in that they reached their nadir at T2 and then remained stable.

   - Those receiving intervention were more realistic in their outlook.

   - The intensity with which psychosocial problems were experienced at T4 was a function of initially heightened levels of negative affect in the control group, but in the intervention group was related to the seriousness of the disease.

3. Specific variables that are barriers to rehabilitation were identified.

   - Psychosocial intervention was effective in removing these barriers.

4. Criteria were developed to predict those patients who are "at risk" to develop psychosocial problems later in the course of the disease.

* Results indicate no significant demographic differences between the control and intervention groups. Similarly, the distribution of medical variables (e.g., prognosis, staging of disease, type of medical treatment administered, etc.) indicated no significant differences.

Outcomes

1. A model psychosocial intervention program for cancer patients was developed.

   - The service delivery model of the "oncology counselor" was developed and implemented.

   - Educational materials were developed to aid the psychosocial health care care professional in treating the cancer patient.

   - These educational materials can be used to develop patient information programs.

   - The intervention methodology that was developed can be applied to a wide variety of cancer patients by various health care professionals.

2. Evaluation instruments were developed that sensitively describe the plight of cancer patients.

   - These evaluation instruments are valid, reliable, and are easily administered. They are unique in that they are not perceived as threatening to the cancer patient who is experiencing an extremely upsetting situation.

   - These evaluation instruments can be used for both research and clinical purposes.

   - These evaluation instruments can be applied to a wide variety of cancer patients by various health care professionals.

Final Report

"Demonstration of Benefits of Early Identification of Psychosocial Problems and Early Intervention Toward Rehabilitation of Cancer Patients"

Phase I: Retrospective Study
Phase II: Prospective Intervention Study

I. Introduction

A. Overview

This study was divided into two phases. The first phase (April, 1975 to December, 1976) was a retrospective study of 136 cancer patients whose initial cancer condition had occurred at least six months prior to the interview. The objectives of this phase were as follows: 1) to systematically survey the psychosocial problems actually experienced by cancer patients; 2) to provide an empirical understanding of the types of issues that would have to be addressed when developing and providing a psychosocial intervention program for cancer patients; and, 3) to begin to develop criteria that could potentially be used to identify cancer patients who, secondary to their illness, would be likely to develop psychosocial problems. Phase II of the study (July, 1976 to December, 1978) consisted of the development, implementation and evaluation of a psychosocial intervention program with primary breast cancer, lung cancer and malignant melanoma patients. Both studies were conducted with patients at New York University Hospital (University Hospital).

This report contains a detailed description of Phase II of the study. The results of Phase I are summarized in the next section. (A detailed description of Phase I can be found in Appendix A*.)

B. Summary of Phase I: Retrospective Study

1. Research Design

One hundred thirty-six cancer patients (46 breast cancer, 45 lung cancer, 45 sarcoma) who had been treated at University Hospital during the 1972-75 period were given a structured, problem-oriented clinical interview designed to evaluate twelve areas of life performance and to assess the presence of 109 potential psychosocial problems. Several psychometric instruments were included in the assessment: the Schedule of Recent Events (SRE) (Holmes & Rahe, 1967); the Multiple Affect Adjective Checklist (MAACL) (Zuckerman & Lubin, 1965); the Langner Psychiatric Impairment Scale (LPIS), Langner, 1962); the Health Locus of Control (HLC) (Wallston & Wallston, 1974); the People Test (Diller, Gordon, Swinyard & Kastner, 1969); and, an Activities of Daily Living (ADL) Checklist (Katz & Lyerly, 1963; Sarno, Sarno & Levita, 1973).

* Appendix A "Results of Phase I: A Retrospective Study of 136 Cancer Patients" had been sent to NCI in January, 1978.

2. Results

a. The psychosocial problems of cancer patients could be assessed and classified according to the frequencies of their occurrence, i.e. some problems were infrequently reported, some were common to cancer patients independent of site, some were specific to a particular site and some were specific to cancer patients who reported many psychosocial problems.

b. Breast cancer patients reported significantly fewer psychosocial problems than either lung cancer or sarcoma patients.

c. Within each site-of-cancer group, a finite set of psychometric variables accurately predicted the total number of problems reported by each patient (Multiple R: breast cancer = .73; lung cancer = .87; sarcoma = .85). As with the psychosocial problems, some of the independent variables (psychometric) were the same for all three groups. The remaining independent variables were either common to two of the groups or site-specific. These findings are important for two reasons: a) Differential predictors were found among the different types of cancer patients rather than between cancer patients and "healthy" individuals or those with illnesses other than cancer; b) If validated, the relationship between elevated psychometric test scores and the report of more psychosocial problems would indicate that heightened levels of negative affect have specific meaning in terms of a person's daily functioning. The assessment of psychosocial problems provided a context for understanding the day-to-day difficulties that might be associated with elevated psychometric test scores.

3. Findings Relevant to Organizing a Psychosocial Intervention Program

One of the purposes of the retrospective study was to provide a data base which would serve as the foundation of a psychosocial intervention program. Several findings related to this objective are discussed below:

a. Some psychosocial problems were found to be infrequently reported; therefore, an intervention program designed for a similar group of patiencs need not address such problems. In contrast, other problems were reported so frequently that it could be assumed that most cancer patients may face them and that ways of dealing with them must be incorporated into the "routine" care of the patient.

b. All patients reported at least six cancer-related psychosocial problems. This indicated that all patients have a need for some intervention.

c. Patients with different sites of disease reported different constellations of psychosocial problems. Thus, a model service delivery program needed to take into account such site differences.

II. Purpose - Phase II: Prospective Intervention Study

The purposes of Phase II were as follows:

A. To develop a psychosocial intervention program for cancer patients that, if found to be effective, could serve as a model program.

B. To implement this program within the context of an acute care setting.

C. To evaluate the effectiveness of this program in ameliorating the psychosocial problems of cancer patients.

D. To determine who the program helps and how it helps them.

III. Research Design - Phase II

The prospective intervention study involved three conditions: two control (C1, C2) groups and a psychosocial intervention (I) group. Patients in the intervention group received a program of systematic psychosocial rehabilitation plus evaluations, while patients in both control groups received only psychosocial evaluations.

Ethical considerations were taken into account in designing the study. It was thought important to avoid having one patient assigned to the I group and one patient assigned to the C group in the same room. Consequently, simultaneous accession and randomization of I and C groups was not possible. Instead, a non-equivalent control group design with multiple time series was implemented (Campbell & Stanley, 1968). More specifically, data collection on the two control groups was separated by a one year interval during which time patients in the intervention group were accessed. Patients in all three groups were evaluated at four points in time: at hospital admission (T1); at hospital discharge (T2); three months post hospital discharge (T3); and six months post hospital discharge (T4). A model of longitudinal evaluation was employed (time series) since it allowed for the examination of the developmental course of psychosocial problems, i.e., how did psychosocial problems emerge/dissipate as a function of time/psychosocial intervention. Equivalent data was collected on all three groups of patients (C1, C2, I). This design allowed for the study of:a) changes in patients associated with intervention (I versus C); b) changes in patients associated with time (T1 versus T4); and, c) changes in patients associated with alterations in the hospital health care system after the termination of the psychosocial intervention program (C1 versus C2). In choosing this design, it was assumed that there would be no systematic demographic or illness-related variation in the individuals admitted to University Hospital.

IV. Methodology

A. Instruments*

1. Problem Oriented Interview

The format of the psychosocial evaluations (i.e. problem oriented interviews designed to yield a patient's self-report of problems, plus selected psychometric tests) was similar to that used in Phase I (See Appendix A). Examination of the Phase I problem oriented interview resulted in the following changes in the interview format for Phase II: a) elimination of infrequently occurring problems and, b) addition of problems which were frequently raised by patients during the Phase I interview but which had been omitted from the original interview.

The patients' self-report of problems was to be used not only as a means of evaluating the psychosocial intervention program but as a means of diagnosing and treating problems, as well. Therefore, it was decided to alter the interview format in an additional way; not only were patients asked to report the existence of a problem, but they were also asked to report the severity of each acknowledged problem on a 10 point scale (1 = mild, to 10 = severe). In addition to providing the practitioner with a guide to those problems the patient experienced as the most severe, it was hypothesized that this procedure might demonstrate the impact of the psychosocial intervention program by revealing decreased severity of problems over time (i.e., a patient might report the same or even more problems but with diminished intensity).

A series of four problem oriented interviews (T1, T2, T3, T4) were developed for Phase II which assessed 122 different psychosocial problems at four points in time. Specifically, at T1, 46 of 122 problems could be acknowledged by the patient, at T2 45 problems, and at T3 and T4, 109 problems could be acknowledged. These 122 problems covered 13 categories of life functioning: medical treatment; physical discomfort; quality of medical services; mobility; housework; vocational; financial; family; social; worry re: disease; affect; body image; and communication. In addition to the 122 problems, problem oriented interviews contained questions related to demography, medical history and current medical status.

At T3 and T4, all patients were asked to place themselves on a "Life Scale" where the scores ranged from -10 (life now much worse than prior to illness) to +10 (life now much better) in terms of the overall quality of their present lives. In addition, the intervention patients were asked to rate the overall effectiveness of various aspects of the psychosocial intervention program on a 10 point scale (0-10) at T2, T3 and T4.

* Appendix B "Psychosocial Evaluation of the Cancer Patient" contains: the T1-T4 evaluations; description of the psychometric instruments; samples of the physician interviews; definitions of the 122 psychosocial problems; and complete instructions for administering and coding the results of the evaluation.

2. Psychometric Measures

The psychometric instruments used were the same as those administered during the Phase I Evaluation. They included the Multiple Adjective Affect Check List (MAACL) (Zuckerman & Lubin, 1965), the Langner Psychiatric Impairment Scale (Langner, 1962); the Schedule of Recent Events (SRE) (Holmes & Rahe, 1967), People Test (Diller, Gordon, et al., 1969); the Health Locus of Control (HLC) (Wallston & Wallston, 1974); an Activities of Daily Living (ADL) Check List (Katz & Lyerly, 1963; Sarno, Sarno & Levita, 1973); and in addition, the Activity Pattern Indicators (API) (Brown, et al., 1978). These instruments provide a quick, quantitative index of the patient's level of affect disturbance, frequency of engaging in ADL, as well as a quick overview of recent events in the patient's life. Not all psychometric instruments were included at each evaluation period.

3. MD Interviews

The purposes of the MD Interviews were to confirm (with the patient's primary physician) the accuracy of the medical data obtained both from the medical chart and from the patient's self-report of medical condition, and to ascertain the patient's prognosis and current medical status. Two separate interviews were conducted with the physician: the first after the patient's discharge from the hospital (T2) and the second after completion of the program (T4).

The T2 Medical Interview: The physician was asked questions pertaining to the patient's diagnosis, treatment, staging and prognosis. The following questions were also explored: was the patient told his diagnosis and the extent of his disease involvement; did the physician use the word "cancer" with the patient; did the patient use the word "cancer" with the physician; were there any current limitations in capacity to take care of self or home or in ability to work; and, were there any psychosocial difficulties noticed by the physician. All questions referred to the patient's condition and functioning at the time of discharge.

The T4 Medical Interview: This interview had the same format as the T2 medical interview. The questions asked referred to the patient's condition and functioning six months after discharge.

B. Procedure for Patient Selection

Each weekday morning the hospital "admitting sheets" were examined to determine patients who were potentially applicable for the study. The names of all patients with potentially appropriate diagnoses were recorded.

Medical charts of all potential patients were then reviewed in order to determine whether the patients met the following criteria:

1. Diagnosis: potential breast cancer, lung cancer, or melanoma*

2. No previous cancer history: If the patient had any previous cancer history, the patient was not included (except cured basal cell or squamous cell skin cancers).

3. Age: between 18-75 years of age.

4. Geographic location: living within (approximately) a 75 mile radius of the hospital.

5. Language: primarily English speaking.

6. No previous psychiatric history: Patients who were diagnosed as psychotic, mentally retarded or brain damaged were excluded.

7. No prior medical treatment (e.g., surgery, radiation, etc.,) for present condition.

Based on the above criteria, names of all appropriate subjects were recorded.

C. Procedure for Patient Contact

Prior to any contact with the patient, physician consent was obtained. The following procedures were then implemented:

1. Procedure for Control Patient Contact

a) The psychosocial evaluator** went to the patient's hospital room and described the project to the patient. The patient was told that the goal of the project was to discover faster and more efficient methods of helping people adjust to their physical illnesses and resulting treatments. The patient was asked whether he/she would help the project by consenting to have an interview (of approximately one hour's duration) with the evaluator. The patient was also told that there might be other interviews in the future. The use of the word "cancer" was avoided so as not to alarm the patient in any way. The voluntary and confidential aspects of the interview were stressed. If the patient agreed to participate in the project, a signed, informed consent was obtained. The first interview (T1) was then administered.

* Melanoma patients, rather than sarcoma patients, were seen in Phase II as a consequence of the death of Dr. Kenneth Francis (specialist in the treatment of osteosarcoma). Patients with this type of cancer were chosen after consultation with our cooperating physicians. The rationale for this choice was the similarity in the locus of disease, and the treatment provided to sarcoma and melanoma patients.

** The psychosocial evaluator was a team member who conducted the psychosocial evaluation. Psychosocial evaluators were assigned to patients on a random basis.

b) If the patient's diagnosis was found to be malignant (i.e., breast cancer, lung cancer or melanoma), a second interview (T2) was administered prior to hospital discharge. Arrangements were made for the follow-up interview at three months post hospital discharge (T3) and six months post-discharge (T4).

c) If the patient's diagnosis was found to be benign, no T2 interview was administered. No further interviews were conducted with a patient who had a benign diagnosis.

2. Procedure for Intervention Patient Contact

a) The oncology counselor* went to the patient's hospital room and described the project to the patient. The patient was told that a special program existed in the hospital that was concerned with trying to help patients adjust to their physical illnesses and resulting treatments and to make the patients' hospital stay as comfortable as possible. Part of the program consisted of having a one hour interview with the patient which would be done by another member of the program (the psychosocial evaluator). The oncology counselor told the patient that, at this point, it was unclear what needs the patient would have, but whatever they were (e.g., concrete services or counseling) the program would try to be as helpful as possible. The patient was told that more than one interview might be involved. Use of the word "cancer" was avoided so as not to alarm the patient in any way. The voluntary and confidential aspects of the interview were stressed. If the patient agreed to participate in the program, a signed, informed consent was obtained. The psychosocial evaluator then conducted the T1 interview.

b) If the patient's diagnosis was found to be malignant (i.e., breast cancer, lung cancer or melanoma), the patient remained with the program for at least six months during which time the oncology counselor provided psychosocial intervention. The psychosocial evaluator administered T2, T3 and T4 interviews at appropriate times.

c) If the patient's diagnosis was found to be benign, referral was made to the hospital Social Service Department if any psychosocial needs were unmet.

D. Number of Patients Seen

Examination of Table 1 reveals the number of patients interviewed in the Control 1 (C1), Control 2 (C2) and Intervention (I) phases of the

* The oncology counselor was either a team psychologist or social worker doing psychosocial intervention with the patient. The oncology counselor was assigned to patients on a random basis.

Insert Table 1 About Here

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study, respectively. T1 interviews were administered to 83 C1 patients (22 breast, 24 lung, 37 melanoma), 157 I patients (50 breast, 42 lung, 65 melanoma), and 68 C2 patients (26 breast, 17 lung, 25 melanoma). The percentage of patients who were asked to participate but refused was 16% C1, 23% I, and 16% C2. Final T4 interviews were administered to 49 C1 patients, 102 I patients and 46 C2 patients. Reasons for attrition include: benign diagnosis after T1 (16% C1, 13% I, 13% C2); patient expiration before T4 (12% C1, 10% I, 6% C2); or, refusal of patients to continue (13% C1, 12% I, 15% C2). The first two types of attrition (i.e., benign diagnosis, expiration) were beyond the control of the project staff. However, the low rate of attrition due to patient refusals indicated that the project staff was able to develop excellent rapport with patients. This resulted in high accession rates and a willingness of patients to continue to participate in the project even though, for some, no direct services were received as a result of their participation.

E. Description of Psychosocial Intervention Program

1. Team

On the basis of a literature review* and consultation with psychosocial and medical staff, and nurses, the decision was made to utilize the team approach in treating the psychosocial problems of cancer patients. Services were provided by a psychosocial team consisting of psychologists and social workers. The team members functioned as "oncology counselors." No distinction was made between the traditional professional roles of psychologists or social workers. The team trained each other in the areas of non-overlapping skills and also provided peer group support for the many frustrations and feelings of helplessness aroused when working with cancer patients. Consultation with a psychiatrist was also available for patients and staff. A separate psychosocial evaluator conducted the patient psychosocial evaluations.

The basic differences between this and other programs (Izsak, Engel & Medalie, 1973; Winick & Robbins, 1976) was that only one oncology counselor was assigned to each patient. It was felt that limiting the number of psychosocial service providers would facilitate patients' acceptance of the program. Cancer patients, at the point of initial hospitalization, are likely to be upset, anxious, on edge, etc., and, therefore, not open to sharing information and/or receiving input from multiple sources. Thus, it was reasoned that having a single oncology counselor who continued to see the patient for the duration (six months) of the program would be the optimal approach to providing service for the cancer patient.

* See Appendix C, "Psychosocial Aspects of Cancer: Annotated Bibliography."

2. What Was Done

The exact nature of psychosocial intervention varied for each patient. This intervention commenced after the psychosocial evaluator finished the first evaluation (T1) of the patient. The results of the patient's psychosocial evaluation (only the problem oriented interview*) were reviewed at the psychosocial team meetings and an initial treatment plan was developed. By integrating the patient evaluation data with direct discussions with the patient, the oncology counselor sought to better understand the diverse needs of the patient. For example, did the patient have a family member or close friend who had cancer? If so, what kind and what was the outcome? How had the patient responded to previous serious illnesses? What social support systems did the patient possess? How readily did family members talk to each other? How had family and friends responded to the patient's illness? What had the patient been told about his condition? Coping styles as well as specific vulnerabilities the patient displayed were noted.

The oncology counselor would guide discussion with the patient to the problems that were acknowledged in the problem oriented interview. Any other problems that arose during the course of contact were also discussed. Hospital contacts occurred daily, outpatient contacts occurred as needed. The extent of psychosocial intervention was determined by clinical judgement, taking into account: a) the site of cancer; b) the severity of disease; c) the type of medical treatment; and, d) the frequency and nature of problems reported on the problem oriented interview. Treatments plans were developed and periodically revised at psychosocial team meetings.

The three basic types of psychosocial interventions which were offered are listed in Table 2. The first type involved "educating"

Insert Table 2 About Here

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the patient as how to most effectively live with the disease. Such "education" involved: clarifying information about the medical system; clarifying the patient's own medical condition; teaching the patient relaxation techniques, self-hypnosis, etc.. The second type of intervention involved "counseling" the patient. The focus of this type of intervention was on the patient's reactions and feelings toward the disease. Such "counseling" involved: allowing/encouraging the patient to ventilate; offering the patient verbal reassurance;

* The current program sought to prospectively cross-validate the highly significant relationship (found in the Phase I retrospective study) between the total number of psychosocial problems reported by the patient and high psychometric test scores. The oncology counselor was therefore "blind" to the patient's scores on the psychometric tests.

helping the patient clarify his/her own feelings; interpreting thoughts, feelings, behavior; encouraging the patient to act on his/her environment; exploring the patient's past; and, offering indirect support. The third type of intervention involved "environmental manipulation." This included speaking to other health care personnel, e.g., nurses, physicians, etc., about the patient, or making a formal service referral.

The course of interventions were documented in the form of psychosocial problem oriented records (POR). These POR's became the tool by which the course and content of all interventions were documented. A sample of the POR's from the current study is included in Appendix D. The following information was recorded: the date of contact; place of contact; duration of contact; who initiated the contact; the recipient of the intervention (patient, family); the problem presented by the patient; the oncology counselors' interpretation of the problem; the type of intervention offered; and the actual content of the intervention.

These POR's provided a rich source of clinical material which was felt to be potentially useful in guiding future counselors working with cancer patients. Thus, at the end of the study the POR's on all intervention patients were examined and the most frequent problems and interventions noted. Educational modules were then written for those problems that were most frequently experienced by cancer patients. These modules indicated which interventions were not only felt to be the most effective in alleviating these problems, but those that were most frequently applied (see Appendix E: Psychosocial Intervention with Cancer Patients - Manual for Oncology Counselors). These educational modules are useful in providing clinical knowledge and skill to the counselor working with the cancer patient.

V. Results

A. Who Was Treated/Evaluated

1. Demographic Data

Analysis of the data presented in Table 3 revealed that there

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Insert Table 3 About Here

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were no significant demographic differences between individuals in the I and C groups. Thus, those who consented to participate in the study were predominantly white, middle-aged, at least high school educated, middle class, married, and practicing their religion.

2. Medical Data

Analysis of the data presented in Table 4 indicates that there

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Insert Table 4 About Here

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were no significant medical differences between individuals in the I and C groups. The staging of the disease for the breast cancer and melanoma patients tended to be classified as "local" and they tended to have a "good" prognosis. These individuals required few diagnostic procedures (invasive/non-invasive). As would be expected, the lung cancer patients required more diagnostic procedures, were sicker, and had a poorer prognosis.

B. Potential Sources of Sampling Bias

There were three potential sources of sampling bias to be examined. The first potential source of bias was that associated with consent to participate in the program. The second potential source of bias was the possibility of systematic differences (medical, demographic, etc.) between those who agreed to participate in the program but who terminated their involvement prior to the final T4 evaluation. The third potential source of bias was that which could be associated with time of entry into the study.

1. Sampling Bias Associated with Consent to Participate

There were 204 patients eligible to participate in the intervention program and 180 who were eligible to participate as control patients. There were 47 patients (23%) who refused to participate in the I group and 28 (16%) who refused to participate in the C group. This potential source of bias was examined by compiling the data (sex and age) that was available on all patients (from admission sheets) and comparing the distribution of these two variables in

patients who agreed to participate in the program and those who refused. Individuals who refused to participate in the study were significantly older than those who did not (I: $t = 2.49$, $p < .05$; C: $t = 4.15$, $p < .01$). There was no difference in the representation of males and females in lung cancer and melanoma patients who either refused or consented to participate in the study.

2. Sampling Bias Associated with Attrition

The second source of bias (attrition) was examined by comparing all of the demographic, medical, and psychometric data of those patients who dropped out of the program (C or I) with data of those who did not.

a) Control Group - A total of 151 patients consented to participate in the control group. Of these 21 (14%) dropped out at some point after the T1 interview. Those who declined further contact were

   1) more likely to be male ($x^2 = 12.04$, $p < .001$);
   2) older ($t = 3.23$, $p < .01$);
   3) less educated ($x^2 = 15.21$, $p < .01$);
   4) more likely to have experienced a greater variety of medical treatments ($t = 2.09$, $p < .05$); and
   5) more likely to report higher (external locus of control) scores on the HLC ($t = 2.39$, $p < .05$).

b) Intervention Group - A total of 157 individuals consented to participate in the intervention program. Of these, 19 (12%) declined contact at some point after the completion of the T1 interview. The only variable that differentiated those who remained in the program from those who did not, was that those who remained in the program were less likely (82% versus 62%) to practice their religion than those who dropped out ($x^2 = 6.17$, $p < .05$).

Although the proportion of those dropping out of either the control or intervention group was the same, there were five variables associated with attrition in the control group, while only one variable was associated with attrition in the intervention group. The intervention program, therefore, may be seen as facilitating continued contact with patients who present the constellation of factors associated with attrition.

3. Sampling Bias Associated with Time

There were no significant demographic, medical, or psychometric differences between those patients in the C1 versus those in C2. Thus no sampling bias existed as a function of time of entry into the study.

C. Changes in the Health Care System

There were significant differences in the ways in which both the hospital system and physicians responded to individuals in the second control group (C2). Patients in C2 were more likely to have received service by the hospital Social Service Department ($x^2 = 12.55$, $p < .001$). Similarly, mastectomy patients were more likely to have been contacted by "Reach to Recovery" ($x^2 = 4.72$, $p < .05$). Furthermore, physicians noted that they more frequently used the word "cancer" in dealing with this group of patients (C2) both at T2 ($x^2 = 12.29$, $p < .01$) and T4 ($x^2 = 9.26$, $p < .01$). This indicated that the intervention program had some impact on the health care system itself. However, this impact did not effect the patients. There were no significant differences between C1 and C2 patients in psychometric test scores or in their self-report of problems.

D. How Did Psychosocial Intervention Work

1. Frequency/Duration of Patient Contact

Table 5 presents the mean frequency and duration of contacts spent

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Insert Table 5 About Here

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by the oncology counselors both with patients and with health care personnel. The table is broken into two time periods -- during hospitalization (T1-T2) and post-hospitalization through to six months (T2-T4).

Analysis of the frequency of contacts during hospitalization (T1-T2) indicated that the average patient was seen 11 times for an average of 20 minutes. There were no site differences in frequency or duration of contacts with patients or with health care personnel. In contrast, site of cancer influenced the course of intervention once the patient returned home from the hospital. Lung patients received the most service in that they were contacted more than melanoma patients (frequency: $t = 4.91$, $p < .01$; duration: $t = 3.43$, $p < .01$) or breast patients (frequency: $t = 2.49$, $p < .05$). Breast patients received less service than lung patients but more than melanoma patients (frequency: $t = 2.97$, $p < .01$, duration: $t = 2.53$, $p < .05$). Contacts with health care personnel were more intense for lung patients than melanoma patients (frequency: $t = 2.79$, $p < .01$, duration: $t = 2.60$, $p < .05$), but there were no differences between the breast and melanoma patients.

Thus upon return home, lung patients required the most service and melanoma patients the least. Lung patients were seen an average of 20 times, breast patients 13 times and melanoma patients 8 times. The average length of duration for each session was approximately 20 minutes.

2. Relationship between Evaluation and Intervention

The problem oriented interview served as a "diagnostic" tool in that it elicited those psychosocial issues which were felt by the patient to be problematic. The POR* on the other hand, was designed to document the problems "treated" and the nature of the "treatment" offered to the patient. In order to determine the congruence between "diagnosis" and "treatment," the problems raised in the problem oriented interview and those dealt with by the oncology counselor (documented in the POR) were compared to determine the extent to which patients' self-report of problems (as noted in the evaluations) were addressed by the intervention program. The following findings emerged: a) Sixty-five percent of the problems that were reported in the problem oriented interview (evaluation) were "treated" with

* See Appendix D - Sample Problem Oriented Records

psychosocial intervention; b) Of all the problems "treated" (documented in the POR), 31% were problems that had not been raised by the patient in the evaluation but had emerged during the course of treatment. Those problems that were raised in the evaluation and subsequently treated during the course of intervention were given higher severity weights than those problems that were reported during the evaluation but were untreated ($t = 7.43$, $p < .01$).

The psychosocial intervention program was responsive to patients' self-reported problems in that most of what was reported was treated and those problems which were experienced more severely were more likely to receive treatment. The program was also sufficiently flexible as to be sensitive to psychosocial issues which emerged during the course of treatment but were not acknowledged during the evaluation.

3. Relationship between Type of Intervention and Type of Problem

In order to determine the relationship between the type of problem reported and the type of intervention offered, the 14 types of psychosocial intervention were factor analyzed. A three factor solution emerged. (See Table 6.) Five clusters of types of inter-

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Insert Table 6 About Here
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ventions were formed by separating, within each factor, those interventions that loaded positively from those that loaded negatively. Clustering the interventions in this fashion made clinical sense and allowed for the naming of each cluster. The clusters were labeled as follows: educational, supportive, interpretation, environmental and medical condition. (See Table 7.)

Insert Table 7 About Here

The problem oriented records for all intervention group patients were examined and the types of interventions that followed the report of a problem were summed across patients. Problems were categorized by the 13 areas of life functioning assessed in the evaluations.* Three major patterns of interventions emerged that significantly differed (x^2, $p < .001$) from each other in terms of content:

1) Cluster 1 (Educational) and Cluster 2 (Supportive) predominate;
2) Cluster 2 (Supportive) and Cluster 3 (Interpretation) predominate;
3) Cluster 1 (Educational), Cluster 2 (Supportive), Cluster 3 (Interpretation) and Cluster 4 (Environmental) are equivalently represented.

* The category Housework had too few interventions to be included in this analysis.

Problems in the following seven areas of life functioning received interventions in which the content was both "educational" and "supportive" (Cluster 1): Physical Discomfort, Treatment, Service, Mobility, Vocational, Financial, and Body Image. In other words, these problem areas were dealt with by a) clarifying or giving information about the medical system, teaching about cancer and what side effects could be expected, teaching what to do about physical discomfort, self-care, etc. (educational); and, b) offering reassurance and support directly and indirectly, exploring the patient's past and current situation (supportive).

Problems in the areas Family, Worry re: Disease and Affect again received the interventions termed "supportive" plus the interventions termed "interpretation" (Cluster 3). Thus, in addition to "supportive" interventions, these problems were dealt with by helping patients clarify feelings, interpreting thoughts, feelings and behavior in more psychodynamic terms, and teaching about emotional reactions to cancer.

The problem area Communication was dealt with by the interventions termed "educational," "supportive," "interpretation" and "environmental" (i.e., actually speaking to health care personnel about the patient or making service referrals) (Cluster 4).

This analysis indicates that intervention is not just individually tailored to a single problem or to a single patient. Rather, interventions are arranged to fit the content areas of the problem being treated. Knowledge of such patterns of intervention is helpful in the rapid delivery of psychosocial intervention to the cancer patient.

E. Did the Psychosocial Intervention Program Help?

It was hypothesized that there were three potential ways in which the effectiveness of the intervention program could be observed in the data: 1) differential rates of decline in the number, type and severity of problems reported; 2) differential rates of recovery of levels of affect; 3) differential patterns of behavior. Each of these issues was addressed through the use of the appropriate statistical procedure (repeated measures ANOVA;* Chi-Square, etc.).

1. Self-Report of Problems and Severity Weights

a. Self-Report of Problems - Table 8 and Figure 1 present the

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Insert Table 8 About Here

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* Post-hoc analyses were carried out using one degree of freedom contrasts or Tukey B-procedures.

TIME COURSE OF SELF—REPORT OF PROBLEMS IN SIX GROUPS OF CANCER PATIENTS

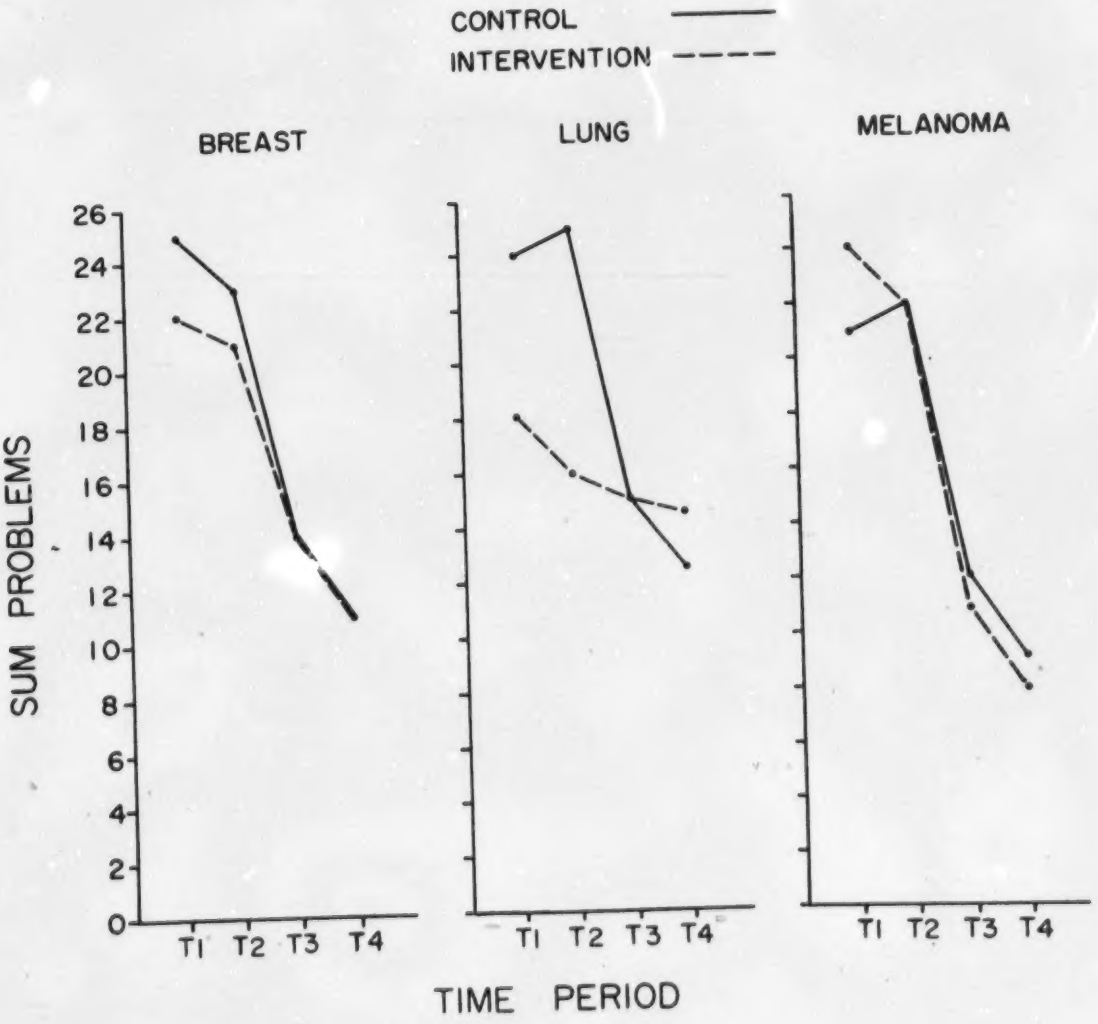

FIGURE 1

mean number of problems reported by patients at each time interval (T1-T4). Analysis of these data revealed the following significant ($p < .05$) findings:

- The mean number of psychosocial problems reported by breast cancer (I and C)* and melanoma (I and C) patients was significantly less at T3 and T4 than at either T1 or T2. Thus, there was a significant decline in the self-report of psychosocial problems three months post hospital discharge. This decline appeared to be stable (at least for six months). Rather than declining evenly, there were two rates of reporting psychosocial problems, one that was associated with the period of hospitalization (T1-T2), and one that was associated with the day to day psychosocial difficulties encountered in living with the disease once the individual returned home (T3-T4). This overall pattern of reporting problems was not modulated by intervention, i.e., the pattern was similar in both I and C patients.

- The number of problems reported by lung cancer patients decreased in the C group at T4 but not in the I group. This differential rate of recovery may, however, be misleading as there were no significant differences between these two groups in the mean number of problems reported at each time interval.

- Intervention did not alter the course of the report of psychosocial problems. That is, the course of the report of psychosocial problems was similar in both I and C groups.

b. Mean Severity Weights - Table 9 and Figure 2 present the mean

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Insert Table 9 About Here

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severity weights of problems reported by patients at each time interval. Analysis revealed the following significant findings ($p < .05$):

- The mean severity weights of self-reported problems were unaffected by time. That is, mean severity weights were equivalent at all time periods.

- The only difference associated with intervention was that at T2 lung cancer patients who received intervention gave significantly lower weights to their problems than did the control patients.

* Since the C1 and C2 groups were essentially the same both demographically and psychometrically, in all subsequent analyses data from the two control groups was combined to form a single group.

TIME COURSE OF MEAN SEVERITY WEIGHTS OF PROBLEMS IN SIX GROUPS OF CANCER PATIENTS

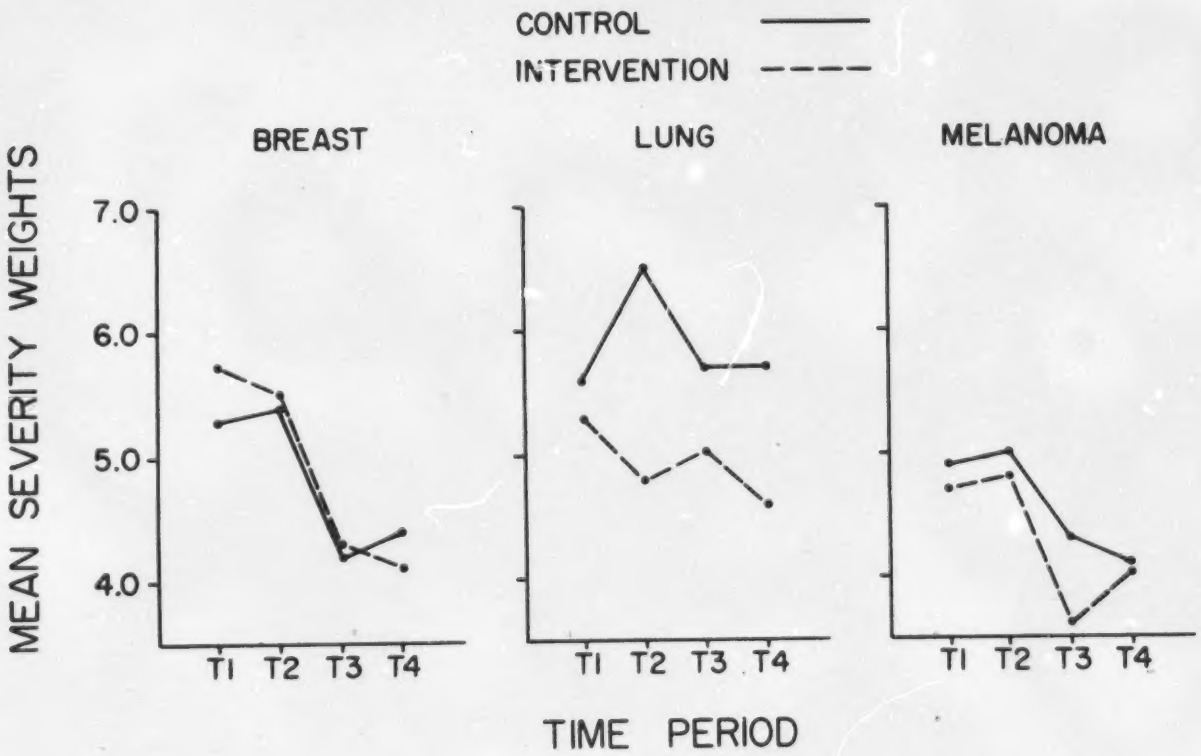

FIGURE 2

c) Problem Areas - It was reasoned that although the self-report of problems did not differentiate the intervention from the control group, it was possible that different constellations of problems might be resulting in similar group means. The situation is analogous to one in which two individuals have similar WAIS full scale IQ's, but where these two summary scores are based on two different patterns of sub-scale performance. Therefore, further I versus C analyses were conducted. The 122 problems (see Table 10) surveyed by the

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Insert Table 10 About Here

T1-T4 interviews covered 13* areas of life functioning (Physical Discomfort, Medical Treatment, Dissatisfaction with Services, Mobility, Housework, Vocational, Financial, Family, Social, Worry re: Disease, Affect, Body Image and Communication). Table 11 presents a summary of the 13

Insert Table 11 About Here
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problem areas, the problems contained in each, and the time periods in which the problems were addressed. In order to determine whether each problem area was equivalently reported and given similar severity weights in the I and C groups, the following analyses (all differences significant at $p < .05$) were undertaken:

1) Problems - The mean frequency of problems reported in each area was examined comparing I and C groups within site.

   At T2, it was found that problems reflecting Worry re: Disease (lung C >, melanoma I >) and Communication difficulties (melanoma C >) significantly differentiated between patients in the C and I groups.

   At T3, Financial problems (melanoma I >), Body Image difficulties (lung I >) and Affect (melanoma C >) significantly differentiated between patients in the C and I groups.

2) Weights - Examination of the mean severity weights given to problems in each area indicated that at T2 those in the C group gave significantly higher weights to problems related to Physical Discomfort (lung patients), and Vocational difficulties (breast and melanoma patients).

* This separation of problems into areas was confirmed by factor analysis.

At T3, those in the C group (melanoma) gave significantly higher weights to Physical Discomfort and Mobility difficulties, while lung patients (I group) were more concerned about Vocational difficulties. At T4, those in the melanoma C group were still significantly more concerned about their Physical Discomfort difficulties, while breast patients (I group) reported more intense distress about Housework related difficulties.

d) Individual Problem Analysis - Since the content areas of psychosocial problems differed in the I and C groups, the frequency and severity weights of individual problems were examined in order to determine which problems were specifically contributing to these differences. Table 12 lists the

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Insert Table 12 About Here

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problems which differentiated between intervention and control patients. These problems fell into 10 of 13 problem areas. Surprisingly, it was found that some problem areas consistently differentiated between I and C patients on the frequency with which problems were reported, while other problem areas were sensitive to the severity of the problems reported.

1) Four areas (Dissatisfaction with Service, Mobility, Financial and Communication) were sensitive to the frequency with which problems were reported.

2) Five areas (Physical Discomfort, Upset about Medical Treatment, Vocational, Family and Affect) were sensitive to the intensity (severity weights) with which problems were experienced.

3) One area, Worry re: Disease, was sensitive to both frequency and intensity.

4) Of the 25 statistically significant (Chi square, $p < .05$) individual problem comparisons, the C group reported higher frequency/severity weights in 21 (84%).

5) Of the 25 statistically significant (Chi square, $p < .05$) comparisons, 11 (44%) were observed on T2 problems. In 10 of these instances the C group reported higher frequencies/severity weights than the I group. Thus, it would appear that the effects of the intervention program are clearest at T2.

2. Psychometric Test Scores

Table 13 presents the psychometric test scores for C and I groups

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Insert Table 13 About Here

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at each time period (T1-T4). The only variables that evidenced significant change over time were the "state" scores of the MAACL: Anxiety, Depression and Hostility (Figures 3-5). Analysis of these scores revealed significant differential site, time and group effects. More specifically:

- Breast Cancer C Group: Anxiety and Depression scores significantly declined at T2 and then again at T3 ($T1 > T2 > T3 = T4$). There were no T3-T4 differences on the measures. Hostility scores declined only between T2-T3 ($T1 = T2$; $T3 = T4$).

- Breast Cancer I Group: Anxiety, Hostility and Depression scores declined immediately at T2 and remained stable at T2, T3 and T4 ($T1 > T2 = T3 = T4$).

  Comment: There was a more rapid decrease in state affect scores in the patients in the Breast Cancer I group than the Breast Cancer C group.

- Lung Cancer C Group: There were no significant changes over time in Anxiety, Depression or Hostility scores ($T1 = T2 = T3 = T4$).

- Lung Cancer I Group: Anxiety, Depression and Hostility scores dropped at T2 and slowly began to rise again at T3, T4. However, T3, T4 levels were still significantly below those reported at T1 ($T1 > T2 = T3 = T4$; $T2 < T1, T3, T4$).

  Comment: There were no apparent changes in the C group, while the scores of those in the I group declined at hospital discharge and then slowly began to climb.

- Melanoma C Group: There were immediate (T2) declines in Anxiety and Depression scores that were then stable at T3, T4. There was no significant change in Hostility scores ($T1 > T2, T3, T4$).

- Melanoma I Group: There were immediate (T2) declines in Anxiety, Depression and Hostility scores that were then stable at T3, T4 ($T1 > T2 > T3 = T4$).

  Comment: With the exception of Hostility scores, patterns of I and C groups were similar.

TIME COURSE OF STATE ANXIETY SCORES IN SIX GROUPS OF CANCER PATIENTS

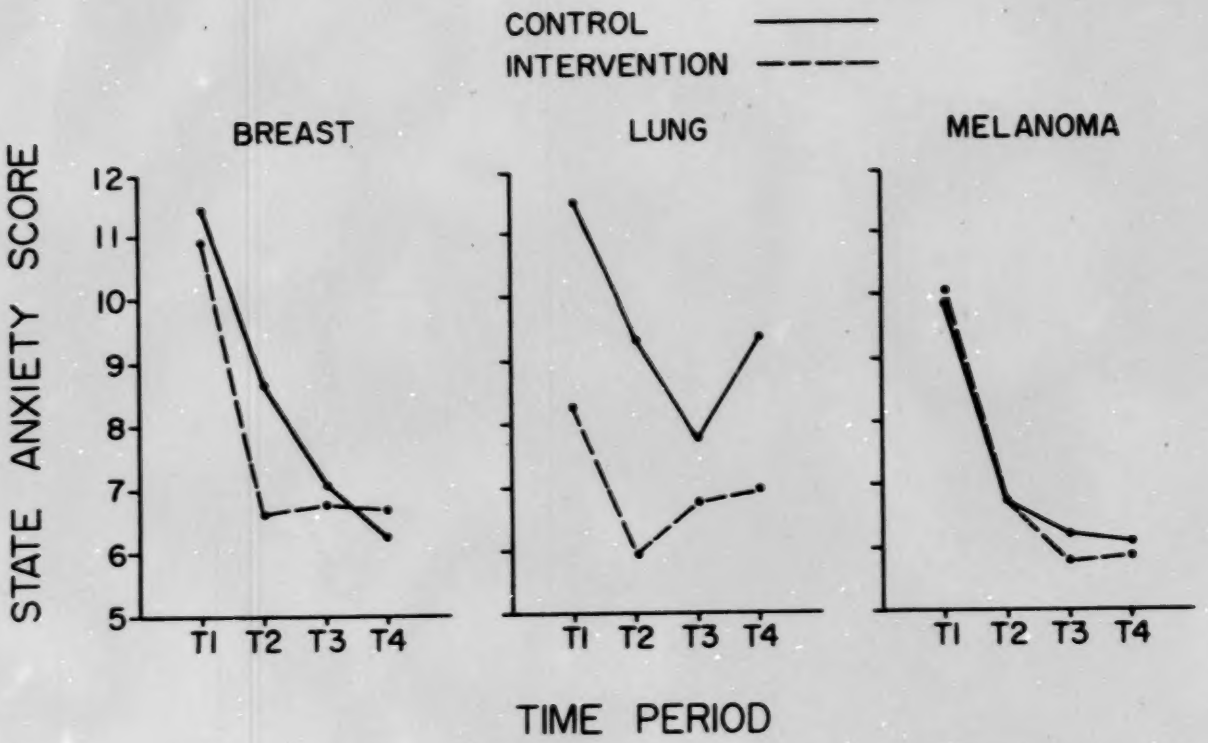

FIGURE 3

TIME COURSE OF STATE DEPRESSION SCORES IN SIX GROUPS OF CANCER PATIENTS

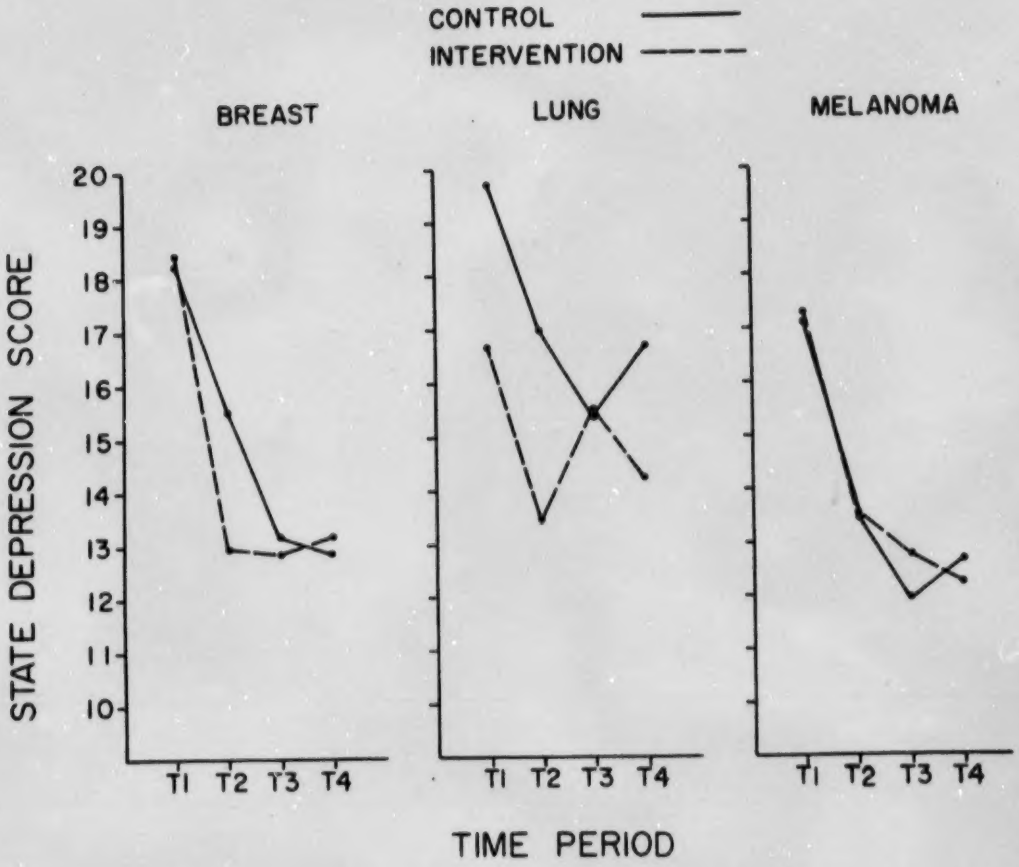

FIGURE 4

TIME COURSE OF STATE HOSTILITY SCORES IN SIX GROUPS OF CANCER PATIENTS

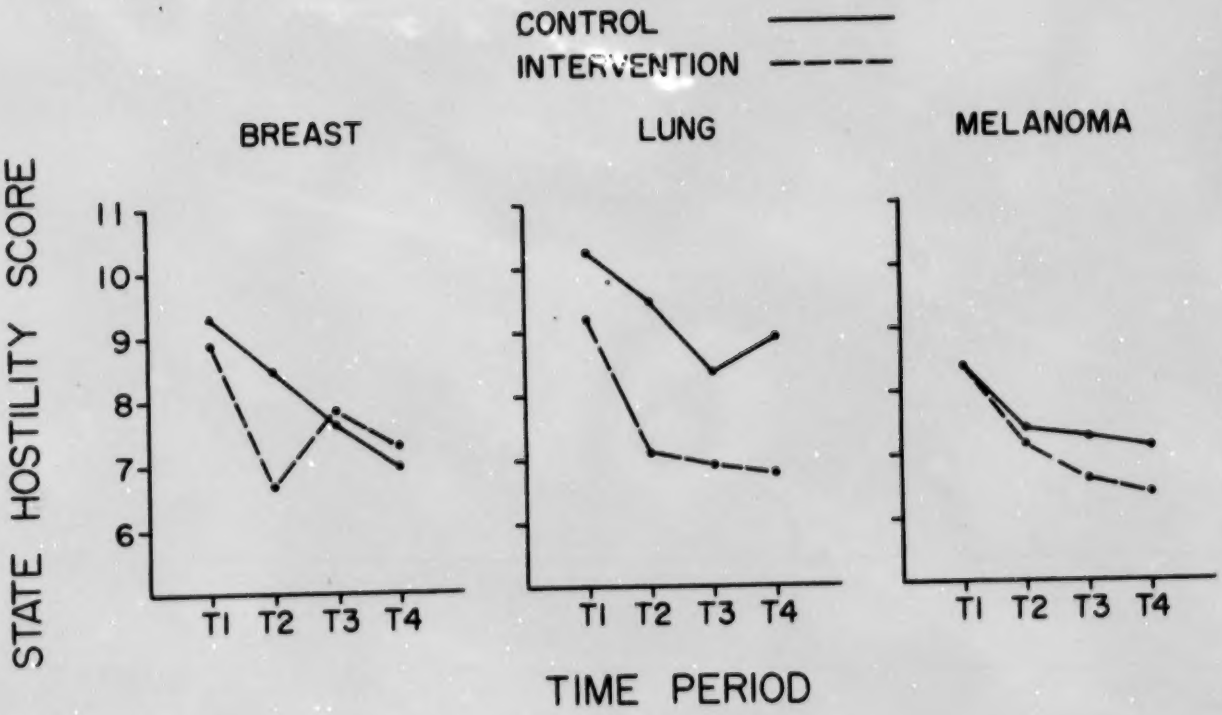

FIGURE 5

3. Changes in Behavior

In designing the project, it was reasoned that any changes in psychometric scores or in the self-report of problems that were associated with the impact of intervention should generalize and be observed in terms of differential patterns of behavior(s) in individuals in the two groups. These hypothesized behavioral differences were assessed in three ways: a) Scores on a scale measuring overall frequency of activities of daily living; b) Frequency of participating in various social-leisure, family-role activities. These were surveyed by an early version of the Activity Pattern Indicators developed as part of the Rehabilitation Indicators Project (Brown, Caplan and Swirskey, 1978); and c) Examination of Employment Status at T1 and T4.

1) Activities of Daily Living - At T3 those in the I group reported significantly higher (more active) ($t = 2.79$, $p < .01$) ADL scores than those in the C group. While there were no statistically significant findings when the ADL scores were examined by site of cancer, it was found that the scores of the breast cancer and melanoma groups followed the overall group pattern ($I > C$). In contrast, the ADL scores of the two groups of lung patients were similar. Thus, it appeared that although equivalently ill, those in the intervention group resumed ADL activities sooner than those in the control group.

2) Activity Pattern Indicators - At T4, those in the I group more frequently ($p < .05$) participated in Household Business Activities Away from Home (grocery shopping, bill paying, errands, etc.) than those in the C group. The frequency of participation in Solitary Activities at Home (reading, TV watching, napping) was constant from T1-T4 in the I group. In contrast there was a significant ($p < .03$) increase in these activities in the C group between T1 and T4. There were no site-specific findings relative to activity patterns. These measures confirm the greater activity of those in the I group.

3) Employment Status - In determining whether the intervention program had a differential effect on T4 employment status, only two employment statuses were examined: full-time employment and part time employment. The remaining employment statuses either occurred too infrequently (retired) or did not allow for unambiguous interpretation (homemaker, too ill) to be included in this analysis. Table 14 contains a listing of employment statuses of C and I groups over time.

Insert Table 14 About Here

In all three site of cancer groups (I and C) there were fewer people working at T4 than at T1. This drop was sharpest in

those with lung cancer where only 55% of the control and 42% of the intervention patients (of those who were working at T1) had resumed work at T4. The picture was somewhat different in the breast cancer and melanoma groups. Only 63% (breast cancer) and 69% (melanoma) of the control patients had resumed working by T4. In contrast, 94% (breast cancer) and 86% (melanoma) of those in the I group had returned to work. While these figures are not statistically significant, when they are translated into the actual number of people affected, it is seen that the working status of only seven (1 breast cancer, 6 melanoma) people in the I group is disrupted, while the working status of 18 (7 breast cancer, 11 melanoma) people in the C group is disrupted. These numbers speak for themselves. Indeed, if need be, the actual costs of the psychosocial intervention program could be justified by the social benefits (and lessened social costs) provided by the 11 more people who are working at T4 in the I group.

F. Are Psychosocial Problems Predictable?

The problem oriented interviews were, in part, designed to be of diagnostic value. In this study "diagnostic" has two meanings. First, the specific problems reported alerted the oncology counselor to a patient's specific concerns. Second, the interview was designed to be predictive of future difficulties as well. That is, it was felt that the initial evaluation must have predictive validity. Predictive validity was examined in two ways: 1) By examining the intercorrelations of T1 number of problems and T1 mean severity weights with the number of problems and mean severity weights reported at T2, T3, and T4. This might be viewed as an examination of the internal predictive validity of the instrument. 2) In order to examine the external validity of self-report of problems, all data available during the period of initial hospitalization (T1) were used to predict the number of psychosocial problems and mean severity weights given to problems reported at T4. Thus all T1 demographic, medical and psychometric data were used to predict T4 sum problems and mean severity weights. The T1 sum problems and T1 mean severity weights were not allowed to enter into the regression equation, as they could contaminate these findings.

1. Intercorrelation of Problem Sums and Weights Over Time

Inspection of Table 15 reveals that the self-report of problems

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Insert Table 15 About Here

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are significantly more intercorrelated in the I group than in the C group. In contrast, the intercorrelations of the severity weights are similar in both groups. (The only exception is the T2-T4 correlation which was significantly ($p < .02$) higher in the I group than in the C group).

2. Prediction of T4 Problems and Weights

A total of 28 variables (14 medical, 6 demographic, 8 psychometric) were allowed to compete for entry into the regression equations that were generated to predict T4 sum problems and mean severity weights.

a. Prediction of T4 Problems

1) Intervention - Only two variables, the number of pathognomonic signs reported on the LPIS at T1 and the initial staging of the disease, contributed significant amounts of unique variance to the prediction of T4 sum problems. The resulting multiple correlation was .595 ($p < .001$), accounting for the 35% of the variance. When site of cancer was allowed to compete for entry into the regression equation, the magnitude of the multiple correlation was marginally increased to .640 (R^2 = 41%). In order to determine whether the psychometric test scores or medical variables were more potent predictors, the T1 psychometric test scores and medical data were used to generate the independent regression equations. In both analyses, it was found that no other variables contributed significant proportions of variance. Thus, the simple correlation between the T1 LPIS and T4 problems was .515 ($p < .001$) and between staging and T4 problems was .345 ($p < .005$). Although the correlation was higher for the psychometric test score than it was for the medical variable, this difference in the amount of variance accounted for (27% versus 12%) was not statistically significant. It is of interest to note that the addition of the medical variable to that of the psychometric test score only contributed an additional 9% unique variance to that which was already contributed by the psychometric test score.

2) Control - A similar set of findings emerged when this analysis was repeated with the control group. That is, when all T1 data (demographic, medical, psychometric) were used to predict T4 problems, a significant multiple correlation emerged (R = .476, $p < .001$) accounting for 23% of the variance. This R^2 was based on three variables: T1 LPIS, Staging and Ethnicity. When site of cancer was allowed to compete for entry in the regression equation, the multiple correlation was unchanged. In the C group the simple correlations between the psychometric test scores (T1 LPIS, r = .2 85, $p < .05$) and the medical variables are equivalent (staging r = .345, $p < .005$). In order to study the contribution of ethnicity, a forced prediction model was derived which was based only on T1 LPIS and Staging data. The multiple R was reduced to .409 (from .476). Thus, ethnicity is only contributing to 7% of the variance.

Comment: Although the multiple R^2 is higher in the intervention group (35%) than in the control group (23%), this difference is not statistically significant. Interestingly, the variables accounting for the most variance (T1 LPIS and Staging) are the same in both groups.

b. Prediction of T4 Mean Severity Weights

1) Intervention - Five T1 variables (T1 LPIS, age, initial staging of the disease, number of major invasive diagnostic medical procedures and number of minor invasive diagnostic medical procedures) were found to contribute unique proportions of variance in the prediction of T4 mean severity weights. Thus, three medical variables, one psychometric and one demographic variable contributed significant proportions of variance. The resulting multiple correlation was .527 ($p < .001$) accounting for 28% of the variance. When site of cancer was allowed to compete for entry into the regression equation, the multiple correlation was increased, albeit non-significantly, to .577 ($R^2 = 33\%$). In order to determine the separate components of this correlation, the psychometric data and medical data were separated and used to generate independent regression equations. In both instances only single variable models emerged, accounting for 12% (psychometric: T1 LPIS) and 6% (medical: prognosis) of the variance. Thus, a combined data set was needed to extract a significantly larger proportion of variance.

2) Control - Five variables (T1 Health Locus of Control, T1 Langner Scale, T1 Anxiety, T1 Hostility and Number of Chemotherapy treatments) significantly contributed variance to the T4 severity weights. Thus, four psychometric variables and one medical variable contributed significant proportions of variance. The resulting multiple correlation was .536, accounting for 29% of the variance. When site of cancer was allowed to compete for entry into the regression equation, the multiple correlation was increased, although non-significantly to .598 ($R^2 = 36\%$). In order to study the separate contributions of psychometric and medical variables to the prediction, separate analyses were performed. It was found that only one (T1 LPIS, $r = .437$, $R^2 = 19\%$) psychometric variable predicted T4 severity weights, and the use of the medical data as independent variables did not significant predict T4 weights. Thus, the combined data set was essential to the prediction.

Comment: Although the magnitude of the multiple correlations was similar in I and C groups, the independent variables differed. In the control group, four of the five variables are psychometric, while one is medical. In contrast, in the intervention group three

of the five variables are medical, one is psychometric and one is demographic. Thus, the pattern of predictors is different in the I and C groups.

While medical variables are the significant contributors of variance in the I group, they add little to the understanding of the meaning of the severity weights in the C group. In the C group the weights are associated with psychometric test scores. Thus, the severity of the initial medical condition predicted the intensity with which problems were experienced at T4 in the I group, while the initial psychometric test scores predicted the intensity with which difficulties were experienced in the C group. Therefore, the severity weights are syntonic with the physical experience of the disease in the I group and the intensity with which negative affect is experienced in the C group.

G. Who Did the Program Help?

In order to refine our understanding of the effectiveness of psychosocial intervention, two analyses were undertaken. The first analysis involved the examination of whether the program differentially effected those patients in the I group who reported many problems at T1 versus those who reported few problems. The second analysis involved examination of responses to the "Life Scale" (see Appendix B) at T4. That is, comparisons were made among those who at T4 indicated that things were "going better," "the same," or "worse," since T1.

1. High Problem versus Low Problem Groups

In order to determine whether the outcome of intervention was effected by the number of problems reported at T1, the I and C groups were divided into two sub-groups. The basis for sub-group assignment for a particular subject was whether the number of problems reported at T1 was above or below the combined intervention and control median.* This resulted in four** groups of Ss: C above the median (N = 47), C below the median (N = 49), I above the median (N = 51), I below the median (N = 47). Thus, Ss were sorted into four groups on the basis of the self-report of problems at hospital admission prior to the initiation of medical treatment or psychosocial intervention. All data collected following the T1 evaluation were examined using a 2 x 2 ANOVA or appropriate Chi-square analysis.

There were no statistically significant differences between the two I and C subgroups on any demographic or medical variables.

* The distribution of both groups were combined, as there were no I versus C differences.

** Site of cancer did not enter as a factor in this analysis for two reasons: 1) There were no site differences in the report of T1 problems; 2) The sample sizes were not sufficiently large to allow further partitioning.

There were no significant differences on any psychometric test scores in any of the time periods between I and C patients with many problems. Indeed, on practically every test the scores of those with many problems significantly exceeded those with few problems independent of condition (I, C). In contrast, there were observable effects associated with intervention in those who reported few problems. More specifically, at T4:

1) State ($p < .03$) and Trait ($p < .04$) Anxiety scores were lower.

2) State ($p < .05$) Depression scores were lower. In addition, Trait Depression evidenced marginal decline ($p < .08$) as well.

3) State ($p < .03$) and Trait ($p < .05$) Hostility scores declined as well.

In addition, State Anxiety scores at T3 ($p < .07$) and State Hostility scores at T2 ($p < .09$) evidenced marginally significant declines. Thus, it appears that intervention was most effective with those with fewest problems.

2. Life Scale T4

At T4 all patients were asked to complete a scale on which they were instructed to rate "If a 0 meant that your life was just the way it was before you were ill, a +10 meant everything was totally different and better, and a -10 meant everything was totally different but worse, where would you place yourself now on such a scale?" The distribution of responses into -, 0, + categories differentiated those in the I group from those in the C group ($x^2 = 7.51$, $p < .05$). When site of cancer was examined, it was found that although this pattern was repeated in each site of cancer* group, it was only statistically significant in the lung group. Thus, those in the intervention group were more likely to report that they are worse off than before they became ill. In order to understand this seemingly paradoxical finding, all demographic, medical and psychometric data were compared using appropriate 2 x 3 ANOVA or Chi-square. There were no statistically significant differences between the three I and C subgroups on any demographic or medical variable.

a. Control versus Intervention (- "Things are going worse")
The C group reported consistently higher psychometric test scores than those in the I group. This was manifested in terms of a) elevated State Anxiety ($p < .005$), Depression ($p < .01$) and Hostility scores at T2 ($p < .01$); b) elevated Trait Anxiety (T3, $p < .06$); T4, $p < .01$), Depression (T4, $p < .003$) and Hostility (T3, $p < .04$); T4, $p < .03$) scores at T3 and T4; c) more pathognomonic signs on the LPIS

* Site of cancer was dropped as a factor in the remainder of this analysis as there were two few Ss in some cells to render valid statistical inferences.

(T3, $p < .02$); T4, $p < .03$) and more self-report of problems (T2, $p < .01$). Thus, although more patients in the I group reported "things are going worse," their psychometric scores were lower. It might be said that these individuals were more realistic and intervention aided them in gathering the appropriate resources to cope with the disease.

b) Control versus Intervention (0 "Things are the same")
The only differences that emerged between these two groups occurred at T3 and were of marginal statistical significance. More specifically, the Trait Anxiety ($p < .07$) score, Trait Depression score ($p < .09$), Sum Problems ($p < .09$) and mean severity weights ($p < .03$) were higher in the C group than in the I group. These individuals indicated that the disease has had little impact on their lives. Despite this, those receiving intervention were doing slightly better.

c) Control versus Intervention (+ "Things are going better")
Statistically marginal and paradoxical findings emerged from this comparison. The Trait Depression scores at T3 ($p < .06$) and T4 ($p < .09$) were higher in the intervention group than in the controls. Thus, these individuals indicated things were going better, but their test scores were indicative of the opposite. Intervention was not as effective in aiding the adjustment of individuals in this subgroup.

VI. Discussion

The psychosocial intervention program that was developed and implemented as part of this project succeeded in improving the adjustment of cancer patients to living with their disease. This was evidenced by the following findings in the intervention group: a) a more rapid decline of negative affect (anxiety, hostility, depression) scores; b) a less frequent report of specific psychosocial problems; c) a more realistic outlook on life; d) a greater number of patients who returned to work; and, e) a more productive usage of time. Changes were not only manifested in the self-report of "feelings" (affect) and perceptions (problems, outlook), but were also observed in patterns of behavior.

The Effects of Intervention

Both immediate (T2: at hospital discharge) and long term (T4: six months post-discharge) changes were associated with intervention. The immediate effects of intervention were manifested in two ways: 1) Immediate declines were observed in the negative affect scores of patients in the intervention group. The scores of those in the control group did not evidence a similar amount of decline until T3 (three months after hospital discharge). In some instances there were no changes in the levels of negative affect that were reported in the control group, i.e., test scores which were initially elevated did not decline during the six month period of study. Site of cancer did play a role in the rate of recovery of negative affect test scores. The negative affect of both breast cancer and melanoma patients decreased rapidly at the time of hospital discharge and then remained stable. Lung cancer patients' negative affect remained high throughout the six month period of the program. These findings support in part those of Weisman and Worden (1976) who also noted site differences in "peak vulnerability" periods during the course of disease (during the first 100 days). They also found that melanoma patients showed peak vulnerability at the first assessment, followed by a rapid decline, while the disturbance of lung cancer patients steadily increased. However, they found that breast cancer patients did not peak in vulnerability until two months after treatment. 2) The differential report of psychosocial problems for patients in the intervention and control groups was most pronounced at T2. Thus it would appear that the effects of the intervention program in terms of the self-report of problems are clearest at T2.

There were several long term effects associated with intervention. Vocational status is the most common criteria by which the effects of rehabilitation are judged. Schonfield (1972) views vocational status as an important criteria with which to assess the psychosocial adjustment of cancer patients. In the present study it was found that those who were working at T4 (in both intervention and control groups) reported fewer psychosocial problems at T3 ($p < .05$) and T4 ($p < .002$) and fewer pathognomonic signs on the Langner Psychiatric Impairment Scale ($p < .004$) at T4. It appeared that those who were working were better able to cope than those who were not working, and that intervention facilitated a return to work. The study, thus, supplied empirical support for the idea that working is associated with adjustment.

There were other long-term behavioral outcomes associated with intervention. Patients in the intervention group more frequently participated in household activities (e.g., shopping, banking, etc.), while those in the control group increased the frequency of their participation in "idle" activities (e.g., TV watching, napping, etc.). The frequency of these "idle" activities was constant for those in the intervention group throughout the study (T1 - T4). Therefore, the effects of intervention were associated with active, rather than passive penetration of the environment.

Additionally, at T4 it was found that those in the intervention group were more realistic in their view of the impact of the disease on their lives. This was observed in two ways: a) A greater proportion of those in the intervention group reported that "things are not what they used to be." This outlook was also associated with lower negative affect scores than for control group patients with a similar view. Furthermore, intervention patients who reported that "things had gotten better" since the onset of disease had higher negative affect scores than control patients holding a similar view. It might be speculated that those individuals who state that things have gotten better are maintaining a front of "denial" and are compensating for this, as evidenced by their increased levels of internal negative affect; b) The different perceptions of those in the intervention and control groups was also observed in the correlates of the T4 severity weights. In the control group the intensity with which problems (T4) were experienced was associated with initial levels (T1) of negative affect. In the intervention group at T4, the severity weights were associated with the initial severity of the disease. Thus, in one group the severity weights were associated with the degree of upset reported by the patient, while in the other group this same measure was associated with the severity of the disease. The severity of illness was not related to the severity weights in the control group. Again, the effects of intervention are noted in the more realistic response of those who received psychosocial treatment to the impact of the disease. Support for these findings is found in the work of Rogentine (1978). Rogentine reported that melanoma patients who gave lower weights to specific items on Rahe's (1975) Recent Life Changes Questionnaire were more likely to experience a recurrence than those who gave higher weights to items. Thus, the reporting of higher intensities with which the disease was experienced was negatively correlated with recurrence and positively correlated with health.

Finally, another long-term effect of intervention was found in the systematic differences associated with attrition in the control group but not in the intervention group. Indeed, the cluster of variables (age, education, locus of control, etc.) associated with attrition in this study may be viewed as potential barriers to rehabilitation. They are factors that work against a patient's maintaining contact with other components of the health care system. It was found that the four patient interviews (of approximately four hours duration) designed to elicit the self-report of problems and, therefore, having the potential of bringing to the surface unverbalized concerns, do not have uniform therapeutic effects. They were not found to be of sufficient value to those who dropped out of the control group to motivate their continued participation in the study. In contrast, intervention was able to mitigate against these sources of attrition since systematic factors were not associated with subject attrition in the intervention group. Thus, intervention had the benefit of maintaining contact with those who might have been lost to follow-up.

Utility of Approach

The fact that patients have benefited from intervention points toward the utility not only of intervention per se but the methods of evaluation and the model of care that was developed as well. The contributions of the approach were noted in both the data and the methodological innovations which emerged from the study.

The early identification of those "at risk" of developing psychosocial distress is not only of theoretical importance but has the further potential for improving the efficiency of health care service delivery by targetting those patients who are in need of specific types of assistance. The evaluation methodology developed as part of this investigation has made inroads into this issue. A finite set of variables (2-3) from the initial assessment were found to predict the report of psychosocial difficulties six months post-hospital discharge. These data take 15 minutes to collect and account for 23-35% of the variance. Thus, the T1 evaluation could be used to develop criteria which would identify those patients who are more likely to develop psychosocial distress. The finding that the prediction of future adjustment was more closely allied with the report of psychiatric symptomatology (the Langner Psychiatric Impairment Scale) than with the severity of the disease was surprising. Site of cancer (a variable usually associated with the severity of the disease) was not a significant contributor to the prediction of future adjustment. Indeed, the whole set of medical variables contributed less than 12% of the variance associated with future adjustment. This finding is somewhat different from what had been previously reported in the literature. For example, Weisman and Worden (1976) reported that 40-60% of the variance in emotional distress could be accounted for by medical variables such as staging of disease and treatments received, etc..

There is an abundance of literature (e.g., Bergin & Garfield, 1971) on the difficulty of assessing the efficacy of psychosocial intervention efforts. In this study, this difficulty was manifested when it was observed that, for all patients, problems declined with time since the crisis had passed. Thus, evaluation had to differentiate between two groups, intervention and control, as they both improved with time. Research has been hampered by the lack of adequate instrumentation to sufficiently assess the specific concerns of those involved in a treatment program, and at the same time able to articulate the changes associated with intervention. The evaluation methods developed and applied in this study (self-report of problems, psychometric tests, survey of activity patterns) have not only successfully addressed these issues, but have also elucidated the process of intervention.

The problem oriented psychosocial assessment was an especially important innovation of this study. Although the approach had been suggested by many (Senescu, 1963; Brown & Birley, 1968; and Schain, 1976), it had never been systematically implemented. By examining the self-report of actual problems, the approach is consistent with that used in the field of rehabilitation and allows for a behavioral analysis of "Activities of Daily Living" (ADL) (Diller, 1978). However, such ADL analysis had generally dealt with aspects of motor functioning that have an impact on daily self-care functioning. Parts of the checklist of 122 psychosocial problems of cancer patients which was developed in this study may be viewed as broadening the classical domain

of ADL to include a task analysis of areas of "psychosocial" functioning. This approach adopts the argument of Senescu (1963) who states that all areas of everyday functioning must be examined in order to determine the impact of cancer on total life performance.

The type of assessment emphasized in this study has two additional benefits: 1) It provides the patient with opportunities to respond to questions that are relevant to his/her daily functioning, concerns that are of individual importance but not systematically addressed by conventional mechanisms of health care service delivery; 2) It provides a vehicle for focusing the efforts of the oncology counselor on the concerns of the patient. From the assessment instruments, the counselor was made aware of the particular problems which concerned the patient and was able to utilize this knowledge when interacting with the patient. Not only was this approach effective, but patients found the program highly effective* as well. Thus, it is suggested that this form of systematic behavioral assessment provides an approach to diagnosis and intervention that is more closely allied with efficient cost-effective treatment than one which merely labels patients as "anxious," "depressed," "hysterical," etc.. While such descriptions may provide useful information to the oncology counselor, the level of inference they imply is often several steps removed from the concrete concerns of the patient, and are, therefore, not as useful therapeutically.

The team approach to psychosocial intervention with cancer patients was found to be highly effective; this approach had been found to be effective by others as well (Iszak, 1973; Sheldon, 1970; Holland, 1976). The team members trained each other in the areas of non-overlapping skills and provided mutual support in dealing with some of the psychological sequelae to cancer. In addition to the team concept, the idea of "oncology counselor" was implemented. The oncology counselor** acquired basic medical knowledge of the oncology process as well as knowledge of the psychosocial intervention techniques appropriate for this specific patient population. The oncology counselor used his/her skills with sensitivity and proficiency in applying appropriate intervention principles at appropriate times during the course of the patient's disease. It was found that the needs of the cancer patient were well met by this single oncology counselor who followed the patient from initial hospital diagnosis through hospital discharge and subsequently through the remaining six months of the program.

The oncology counselors found site of cancer to be an important clinical variable in treating the patient. For example, peak periods of distress and

* In order to determine the subjective impact of the intervention program, patients were asked to rate the overall effectiveness of the program on a 0-10 scale (0 - program not effective at all, 10 - program very effective) at the T2, T3 and T4 evaluation times. The mean effectiveness ratings given by the patients were high at all time periods (T2: 8.68, T3: 8.62, T4: 8.56).

** The role of oncology counselor can be filled by social workers, nurses, psychologists, rehabilitation counselors, etc.. In other words, by any trained professional involved in psychosocial care of the cancer patient.

vulnerability were differentially noted and treatment was coordinated accordingly. Other site differences were noted. For example, in terms of the amount of service required, lung patients required the most service, melanoma patients the least. It was found that each site has associated with it separate clinical issues, e.g., different body image concerns, varying reactions to types of medical treatment administered, etc.. It is, therefore, clinically useful not to view cancer as a single disease entity, but rather as a group of different diseases, each having a different impact upon the patient and thereby requiring a different type of adjustment and intervention.

The other methodological developments of the project included: a) the use of the "Problem Oriented Record" which kept a clear account of both problems and interventions for the purpose of elucidating treatment; and b) the utilization of educational modules which were written to aid the health care professional in treating the cancer patient. These modules cover a wide variety of topics in sufficient detail so as to provide an excellent educational program aimed at increasing clinical knowledge and skills and thereby lessening some of the stress experienced by the counselor working with the cancer patient.

Aside from the benefits which accrued to individual patients, this study has also developed methods of evaluation, intervention and a model of care, that can be easily adopted by others and applied to large groups of cancer patients. There remain, however, many gaps in our understanding, not only of the psychosocial impact of cancer, but also of the effects of intervention. The following areas have yet to be examined in depth: What is the impact of the disease on the patient's family? How does the family serve as a support system? Can the difficulties faced by families be ameliorated by intervention? Are the effects of intervention maintained for a longer period of time? Can the program be generalized to patients with other sites of cancer? And, finally, what is the longitudinal course of psychosocial problems in cancer patients and their families? Such future investigations are clearly needed to help the cancer patient and his/her family adjust to living with cancer.

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TABLES

Table 1

Number of Cancer Patients Interviewed in Phase II

		Breast	Lung	Melanoma	Total
T1*	C1**	22	24	37	83
	I	50	42	65	157
	C2	26	17	25	68
		98	83	127	308
T2	C1	16	11	32	59
	I	39	30	62	131
	C2	21	10	25	56
		76	51	119	246
T3	C1	11	6	25	42
	I	27	18	52	97
	C2	19	8	22	49
		57	32	99	188
T4	C1	15	6	28	49
	I	36	15	51	102
	C2	19	6	21	46
		70	27	100	197

* T1 - at hospital admission
T2 - at hospital discharge
T3 - 3 months post hospital discharge
T4 - 6 months post hospital discharge

** C1 - Control Group 1
I - Intervention Group
C2 - Control Group 2

Table 2

General Psychosocial Intervention Principles

Educational

(Ed1) Clarifying/giving information about the medical system -- e.g. explaining hospital procedures, teaching patients' rights, informing patients of existing out-patient services, etc..

(Ed2) Clarifying the patients' own medical condition -- e.g. what type of cancer the patient has, the meaning of test results, etc..

(Ed3) Teaching about cancer and its side effects -- e.g. the side effects to be expected from treatment, what the norms are regarding resumption of activities, etc..

(Ed4) Teaching what to do to relieve physical discomfort, emotional discomfort, etc., e.g., relaxation training, auto-hypnosis, etc..

(Ed5) Reinforcing what other medical personnel have said, i.e., helping patients comply with prescribed medical regime -- e.g., reinforcing the necessity of medical treatment, reinforcing MD statements about the medical condition or treatment, etc..

(Ed6) Teaching about the emotional reactions to cancer -- e.g., what emotional responses can be expected by the patient himself/herself, what reactions can he/she expect from others, etc..

Counselling

(C1) Allowing or encouraging the patient to ventilate feelings.

(C2) Offering the patient reassurance or verbal support.

(C3) Helping the patient clarify own feelings and interpreting thoughts, feelings, and behavior in more psychodynamic terms to patient.

(C4) Encouraging the patient to act on his/her environment -- e.g. urging patient to speak to medical personnel, to family, urging patient to ask questions.

(C5) Exploring the patient's past and/or current situation.

(C6) Offering indirect support, e.g. by listening to patient, chatting with patient about events unrelated to medical condition.

Environmental

(Ev 1) Speaking with health care personnel about the patient.

(Ev 2) Making a formal health service referral.

Table 3

Demographic Data

	BC*	BI	LC	LI	MC	MI
N	35	36	16	21	53	56
Sex						
male	0	0	9	15	19	27
female	35	36	7	6	34	29
Age						
M	55.94	54.94	57.12	61.05	49.85	46.14
SD	12.48	10.70	11.63	8.99	14.47	13.63
Ethnicity						
caucasian	34	33	15	21	53	56
negro	0	1	1	0	0	0
hispanic	1	2	0	0	0	0
Marital Status						
never married	7	8	2	3	14	4
married	23	24	12	17	33	43
divorced/separated	1	4	0	0	3	3
widowed	4	0	2	1	3	6
Education						
some grammar school	0	0	0	0	0	1
grammar school grad.	2	5	1	3	0	0
some high school	3	1	1	4	4	4
high school grad.	7	10	4	5	13	18
some college	13	11	5	3	14	11
college graduate	3	4	1	4	8	11
some graduate school	1	0	0	0	6	4
graduate degree	6	5	4	2	7	7
Occupation						
executive	3	3	3	3	2	6
manager	4	5	2	2	10	11
middle management	3	1	2	5	17	6
clerical/sales	9	11	1	5	11	12
skilled	1	4	4	1	1	6
semi-skilled	1	5	1	3	0	1
unskilled	2	0	0	1	0	3
houseperson	9	6	3	1	11	11
arts profession	3	0	0	0	2	0
student	0	1	0	0	1	0

* BC = Breast cancer C group, BI = Breast cancer I group, LC = Lung cancer C group, LI = Lung cancer I group, MC = Melanoma C group, MI = Melanoma I group.

Table 3 cont.

Demographic Data

	BC	BI	LC	LI	MC	MI
Living Arrangement						
alone	9	6	4	2	9	6
children	1	2	0	1	2	3
spouse or SO	12	11	5	13	19	13
spouse & children	12	12	6	2	13	28
spouse, children, other	0	0	1	1	2	3
spouse, other	1	1	0	0	1	1
parent	0	1	0	1	4	1
other	0	3	0	1	3	1
Religion						
Catholic	11	12	4	11	14	18
Protestant	4	6	4	1	10	14
Jewish	20	18	7	8	26	24
none	0	0	0	1	2	0
other	0	0	1	0	1	0
Practicing Religion						
yes	24	22	10	12	34	36
no	11	14	6	8	16	20
not applicable	0	0	0	1	3	0

Table 4

Medical Data

Staging of Disease

T2	BC	BI	LC	LI	MC	MI
Local	24	21	5	6	45	51
Regional	9	14	7	7	5	5
Remote	1	1	3	8	1	0
T4						
Local	23	21	3	7	42	44
Regional	8	13	4	4	5	4
Remote	2	2	4	3	0	0

Prognosis

T2	BC	BI	LC	LI	MC	MI
Good	22	21	3	5	29	27
Fair	5	9	4	1	17	22
Guarded	7	6	8	15	5	7
T4						
Good	20	21	3	7	30	24
Fair	5	7	1	1	13	16
Guarded	8	8	7	6	5	8

Table 4 cont.

Medical Data

Total Number of Treatments*

T2	BC	BI	LC	LI	MC	MI
N	34	36	16	21	51	56
M	1.06	.97	1.00	.81	1.04	1.12
SD	.60	1.67	.73	.60	.28	.47

T4	BC	BI	LC	LI	MC	MI
N	34	36	12	15	49	49
M	1.26	1.33	1.58	1.40	1.14	1.12
SD	.51	.63	1.0	.63	.41	.39

* Treatment includes surgery, radiation, chemotherapy, immunotherapy, hormonal therapy, other.

Table 4 cont.

Medical Data

Frequency of Diagnostic Procedures*

Invasive Major

T2		BC	BI	LC	LI	MC	MI
	N	34	36	16	21	51	56
	M	0	0	.44	.19	0	.05
	SD	0	0	.63	.40	0	.40

Invasive Minor

T2		BC	BI	LC	LI	MC	MI
	N	34	36	16	21	51	56
	M	.035	.17	3.12	2.81	.20	.11
	SD	.65	.45	3.28	3.64	.53	.49

Non-invasive

T2		BC	BI	LC	LI	MC	MI
	N	34	36	16	21	51	56
	M	.88	1.36	5.31	4.29	1.16	1.27
	SD	1.37	1.20	1.92	2.80	.86	1.34

* Non-invasive - e.g. liver, bone, lung and brain scans, mammography
Invasive minor - e.g. bone marrow biopsy, incisional biopsy, arteriogram
Invasive major - e.g. spleenectomy, exploratory laparotomy

Table 5

Patient/Health Care Personnel Contact Summary

	T1 - T2				T2 - T4			
	Patient Contact		Health Care Personnel		Patient Contact		Health Care Personnel	
	Freq.	Time*	Freq.	Time	Freq.	Time	Freq.	Time
Breast**								
N	36	36	36	36	36	36	36	36
M	12.69	257.36	1.[illegible]2	13.67	12.56	283.75	1.06	9.58
SD	16.06	171.59	3.05	24.80	8.15	284.87	2.67	25.98
Lung								
N	21	21	21	21	16	16	16	16
M	12.76	232.10	2.19	14.48	20.25	412.88	2.38	21.25
SD	4.64	97.56	2.32	15.60	14.04	416.63	3.81	33.74
Melanoma								
N	56	56	56	56	55	55	55	55
M	9.86	204.62	1.32	9.04	7.89	153.58	.69	6.64
SD	5.22	152.76	1.80	15.26	6.74	205.86	1.33	13.54

* Time in minutes

** Average length of hospital stay: Breast - 14 days; Lung - 21 days, Melanoma - 16 days.

Table 6

Three Factor Solution for Types of Psychosocial Intervention

Factor	1	2	3
% Variance	(19.5)	(16.2)	(12.6)
	Ed1* (.69)	Ed6 (.72)	Ed2 (.79)
	Ed3 (.48)	C3 (.64)	Ed5 (.83)
	Ed4 (.58)	C4 (-.42)	
	C2 (-.67)	Ev (-.68)	
	C5 (-.69)		
	C6 (-.41)		

* See Table 2 for complete definition of intervention categories.

Table 7

Five Clusters of Psychosocial Intervention

Cluster 1 "Educational"	Cluster 2 "Supportive"	Cluster 3 "Interpretive"	Cluster 4 "Environmental"	Cluster 5 "Medical Condition"
Ed1* clarifying medical system	C2 direct support	Ed6 teaching: emotional reactions	C4 encouraging action	Ed2 clarifying medical condition
Ed3 teaching: disease	C5 exploring	C3 interpreting	Ev1 speaking to personnel	Ed5 reinforcing other personnel
Ed4 teaching: what to do	C6 indirect support		Ev2 making service referral	

* See Table 2 for complete definition of intervention categories.

Table 8

Mean Frequency of Self Reported Problems

		BC*	BI	LC	LI	MC	MI
	N	29	27	10	12	44	46
T1	M	24.84	22.47	24.17	17.77	21.28	24.01
	SD	10.61	10.08	11.11	9.01	11.48	12.75
T2	M	22.70	21.42	24.68	16.33	22.00	22.31
	SD	8.52	9.53	7.89	8.13	11.63	9.17
T3	M	13.93	14.26	14.80	15.17	12.18	10.54
	SD	7.73	8.50	11.36	9.12	8.07	7.40
T4	M	11.21	11.15	12.50	14.50	9.34	8.37
	SD	7.02	8.68	8.90	7.50	5.92	4.99

Note: These figures have been adjusted to compensate for the varying number of problems applicable at these time periods. At T3 and T4, 109 problems are applicable. At T1, there are 46 applicable problems. Therefore, each subject's score was multiplied by the constant 2.37. At T2, there are 45 applicable problems, therefore, each subject's score was multiplied by the constant 2.42.

* BC = Breast cancer C group, BI = Breast cancer I group, LC = Lung cancer C group, LI = Lung cancer I group, MC = Melanoma C group, MI = Melanoma I group.

Table 9

Problem Severity Weights

		BC*	BI	LC	LI	MC	MI
	N	29	27	10	12	44	46
T1	M	5.31	5.75	5.60	5.26	4.93	4.67
	SD	1.85	1.90	1.94	2.34	1.99	1.81
T2	M	5.36	5.54	6.53	4.78	4.98	4.85
	SD	1.48	1.78	1.97	1.77	1.67	1.82
T3	M	4.25	4.30	5.70	5.05	4.34	3.64
	SD	1.66	2.07	1.57	2.36	2.03	1.86
T4	M	4.40	4.20	5.66	4.62	4.06	4.04
	SD	1.79	1.91	2.33	2.27	1.98	1.69

* BC = Breast cancer C group, BI = Breast cancer I group, LC = Lung cancer C group, LI = Lung cancer I group, MC = Melanoma C group, MI = Melanoma I group.

Table 10

LIST OF 122 PSYCHOSOCIAL PROBLEMS

1. Pre Hospital Physical Discomfort (any type)
2. Current Physical Discomfort (any type)
3. Side Effects - Hospitalization
4. Side Effects - Surgery
5. Side Effects - Chemotherapy
6. Side Effects - Radiation
7. Side Effects - Medication

8. Difficulty with: General Hospital Care
9. " " House Staff
10. " " Nursing Staff
11. " " Aides
12. " " with Friends/Family Visiting (due to transportation or finances)
13. Difficulty with: Hospital Discharge Plans
14. " " Hospital Accounting Dept.
15. Lack of Social Service (only Control)
16. Difficulty with: Effectiveness of Social Service/Psychosocial Intervention Program
17. Lack of Physical Therapy
18. Difficulty with: Effectiveness of Physical Therapy
19. Lack of Counseling (only Control)
20. Difficulty with: Effectiveness of Counseling
21. Lack of Reach to Recovery (Breast Patients)
22. Difficulty with: Effectiveness of Reach to Recovery
23. Difficulty with: Physician Care
24. " " Asking Questions of MD
25. " " Getting Questions Put to MD answered
26. Difficulty with: Adequate Medical Advice
27. " " Ongoing Medical Care
28. " " Transportation to Medical Care

29. Difficulty with: Change in Activities Alone
30. " " Change in Activities with Family
31. Difficulty with: Change in Activities with Friends
32. Difficulty with: Housework Routine
33. " " Household Business (at home)
34. " " Household Business (away)
35. " " Home Maintenance
36. " " Personal Care of self
37. " " Personal Care (helping other adults)
38. Difficulty with: Child Related Activities
39. (at home)
39. Difficulty with: Child Related Activities (away)
40. Difficulty with: Personal Solitary Activity (at home - active)
41. Difficulty with: Personal Solitary Activity (at home - idle)
42. Difficulty with: Personal Solitary Activity (away)
43. Difficulty with: Taking Time off from Home
44. " " Physical Mobility
45. " " Limitation ROM
46. " " Carrying, Lifting Things
47. " " Physical Changes in Home
48. " " Changes in Clothing
49. " " Prosthesis

If Employed:

50. Difficulty with Taking Time off from Work/School
51. Difficulty with: Responsibilities Changing
52. Difficulty with: Employer Knowing/ Not Knowing About Illness
53. Difficulty with: Employer Treating Patient Differently
54. Difficulty with: Coworkers Knowing/ Not Knowing About Illness
55. Difficulty with: Coworkers Treating Patient Differently

If Not Employed/Want to Work:

56. Difficulty with: Looking for Work
57. Difficulty with: Employment Agencies, Employers
58. Difficulty with: Telling/Not Telling Prospective Employers
59. Difficulty with: Acquisition of New Skills

If Not Working/Retired:

60. Difficulty with: Not Working

If in School:

61. Difficulty with: Loss of Time from School
62. Difficulty with: School Administration Treating Differently
63. Difficulty with: School Administration Knowing/Not Knowing About Illness
64. Difficulty with: Classmates Treating Patient Differently
65. Difficulty with: Classmates Knowing/ Not Knowing About Illness
66. Difficulty with: Change in Career Plans
67. Difficulty with Career Planning

68. Difficulty with: Finances

If S.O.: 69-74

69. Difficulty with S.O.'s Reaction to
70. Difficulty with: Not Talking to S.O.
71. Difficulty with: Talking to S.O. Not Being Helpful
72. Difficulty with: Talking to S.O. Not Enough
73. Difficulty with: Change in Relationship with S.O.
74. Difficulty with: Talking to S.O. About Future
75. Difficulty with: A Change in Sex Life (For Everyone)
76. Difficulty with: Sex Life (For Everyone)

Table 10 cont.

LIST OF 122 PSYCHOSOCIAL PROBLEMS

If Family (77-86)

77. Difficulty with: Family Reaction to Illness
78. Difficulty with: Not Talking to Family
79. Difficulty with: Talking Not Being Helpful
80. Difficulty with: Talking Not Enough
81. Difficulty with: Change in Interaction with Family (at home)
82. Difficulty with: Change in Interaction with Family (away)
83. Difficulty with: Change in Interaction (Phone calls/letters)
84. Difficulty with: Change in Family Role
85. Difficulty with: Change in Relationship with Family Members
86. Difficulty with: Talking to Family About Future

87. Difficulty with: Change in Pattern of Dating
88. Difficulty with: Not Talking to Friends
89. Difficulty with: Talking to Friends Not Being Helpful
90. Difficulty with: Talking to Friends Not Enough
91. Difficulty with: Change in Interaction with Friends (at home)
92. Difficulty with: Change in Interaction with Friends (away)
93. Difficulty with: Change in Interaction with Friends (Phone calls/letters)
94. Difficulty with Friends Reaction to Illness

95. Symptoms Affect Patient Emotionally (pre hospitalization)
96. Past Hospital Procedures Upsetting
97. "Hospitalization" Upsetting
98. Surgery Upsetting
99. Routine Checkups Upsetting
100. Chemotherapy Upsetting
101. Radiation Upsetting
102. Medication Upsetting
103. Side Effects Hospitalization Upsetting
104. Side Effects Surgery Upsetting
105. Side Effects Chemotherapy Upsetting
106. Side Effects Radiation Upsetting
107. Side Effects Medication Upsetting
108. Future Procedures Upsetting
109. Future Procedures Upsetting (hospitalization)
110. Future Procedures Upsetting (surgery)
111. Future Procedures Upsetting (routine check-ups)
112. Future Procedures Upsetting (chemotherapy)
113. Future Procedures Upsetting (radiation)
114. Future Procedures Upsetting (medication)
115. Worry re: medical condition
116. Depression (feeling low, down or blue)
117. Being Irritable, on Edge
118. Difficulty with: Feelings Interfering with Daily Activities
119. Difficulty with: Sleeping
120. " " Eating
121. " " Concentrating
122. " " Watching News Media

EXAMINER SCORED PROBLEMS (8)

A. Procrastination
B. Modeling
C. Not Knowing Patient Rights
D. Not Exercising Patient Rights
E. Suicidal Ideation
F. How Feel Things are Going
G. Future Plans
H. Previous Interview Upsetting

Table 11

Thirteen Areas of Life Functioning

Problem Breakdown Across T1-T4 Interviews

	T1	T2	T3, T4
1. Physical Discomfort	1, 2	2	2,3,4,5,6,7
2. Upset re: Medical Treatment		98, 102	98,100, 101, 102,103,105, 106,107,110, 112,113,114
3. Dissatisfaction with Medical Service	12, 43	8,9,10,11,12 13,14,15,16,17, 18,19,20,21,22, 23,25,43	15,16,17,18, 19,20,23,25, 26,27,28,43
4. Mobility	36	44, 45	36, 44, 45, 46
5. Housework	32, 33, 34, 35, 37		32, 33, 34, 35, 37, 47
6. Vocational	50	50	50,51,53,55, 56,57,59,60, 61,62,64,66, 67
7. Financial	68	68	68
8. Family	30, 38, 39 81, 82, 83	69, 77	30, 38, 39, 69, 73, 77, 81, 82, 83, 84, 85
9. Social	29, 31, 40 41, 42, 91, 92, 93	94	29, 31, 40, 41, 42, 87, 91, 92, 93, 94
10. Worry re: Disease	95, 96, 108, 115	96, 108, 115	99, 109, 111, 115, 122
11. Affect	116, 117, 119 120, 121	97, 116, 117 119, 120, 121	97,116,117, 118,119,120 121
12. Body Image	75, 76		48, 49, 75, 76, 104
13. Communication	70,71,72,78 79,80,88,89,90	24,70,71,72,78, 79,80,88,89,90	24,52,54,58, 63,65,70,71, 72,74,78,79, 80,86,88,89, 90

Table 12

Specific Problems That Were Differentially Reported in I and C Groups

Area		Problem	Freq.	Weight	Group Higher
Physical Discomfort	T2	Current Physical Discomfort		X	Lung Control
	T3, T4	Current Physical Discomfort		X	Melanoma Control
	T3, T4	Side Effects/Surgery		X	Melanoma Control
Upset re Medical Treatment	T2	Surgery Upsetting		X	Melanoma Control
Dissatisfaction with Medical Services	T3	Taking Time Off From Home	X		Breast Control
	T3	Inadequate Medical Advice	X		Melanoma Control
	T4	Difficulty with Ongoing Medical Care	X		Breast Control
	T4	Questions to MD Unanswered	X		Melanoma Control
Mobility	T2	Physical Mobility	X		Melanoma Control
	T3	Physical Mobility	X		Melanoma Control
	T2	Limitation Range of Motion	X		Breast Control
	T2	Limitation Range of Motion	X		Melanoma Intervention
Vocational	T2	Taking Time Off from Work/School		X	Breast Control
	T2	Taking Time Off from Work/School		X	Melanoma Control
Financial	T3	Inadequate Finances	X		Melanoma Intervention
Family	T3	Family Reactions to Illness a Problem		X	Breast Intervention
Worry About Disease	T2	Worry about Medical Condition	X	X	Lung Control
	T2	Future Procedures Upsetting		X	Melanoma Control
	T3	Routine Checkups Upsetting		X	Melanoma Intervention
	T2	Past Hospital Procedures Upsetting	X		Breast Control
	T2	Watching News Media a Problem	X		Breast Control
Affect	T2	Sleeping Difficulties		X	Lung Control
Communication	T3	Talking to Family about the Future	X		Melanoma Control

Table 13

Psychometric Test Scores

MAACL* Anxiety: State

		BC	BI	LC	LI	MC	MI
T1	N	(35)	(35)	(15)	(20)	(53)	(54)
	M	11.43	10.86	11.53	8.30	9.87	10.07
	SD	3.81	4.58	3.40	4.34	4.54	4.58
T2	N	(33)	(32)	(15)	(20)	(51)	(56)
	M	8.70	6.56	9.27	6.00	6.80	6.77
	SD	5.10	3.92	3.59	3.66	3.81	3.34
T3	N	(29)	(26)	(14)	(17)	(47)	(51)
	M	7.07	6.81	7.79	6.76	6.23	5.80
	SD	3.46	3.53	4.04	2.51	3.62	3.79
T4	N	(34)	(35)	(12)	(14)	(49)	(51)
	M	6.29	6.74	9.42	7.00	6.10	5.88
	SD	3.69	4.06	3.29	4.59	3.83	3.44

MAACL Anxiety: Trait

		BC	BI	LC	LI	MC	MI
T1	N	(21)	(34)	(10)	(18)	(29)	(54)
	M	6.86	6.75	7.30	6.17	6.72	5.87
	SD	4.13	2.88	4.03	3.63	5.19	3.85
T2	N	not administered					
	M						
	SD						
T3	N	(29)	(25)	(14)	(15)	(43)	(50)
	M	7.07	6.68	8.36	7.00	6.23	5.64
	SD	3.49	4.22	4.38	3.85	4.30	3.79
T4	N	(33)	(35)	(11)	(14)	(47)	(50)
	M	6.18	6.66	8.54	6.00	6.30	5.38
	SD	3.01	4.26	4.37	3.96	4.08	3.09

* Multiple Adjective Affect Check List

Table 13 cont.

Psychometric Test Scores

MAACL Depression: State

		BC	BI	LC	LI	MC	MI
T1	N	(35)	(35)	(15)	(20)	(53)	(54)
	M	18.34	18.37	19.67	16.65	17.11	17.20
	SD	5.30	6.42	4.78	7.70	6.01	6.18
T2	N	(33)	(32)	(15)	(20)	(51)	(56)
	M	15.51	13.00	17.00	13.40	13.45	13.54
	SD	6.96	5.79	5.32	6.90	5.47	4.71
T3	N	(29)	(26)	(14)	(17)	(47)	(51)
	M	13.24	12.92	15.36	15.53	11.94	12.76
	SD	5.67	5.51	6.70	5.96	5.80	6.40
T4	N	(34)	(35)	(12)	(14)	(49)	(51)
	M	12.88	13.17	16.67	14.21	12.71	12.25
	SD	5.07	6.35	6.53	7.42	6.02	5.25

MAACL Depression: Trait

		BC	BI	LC	LI	MC	MI
T1	N	(21)	(34)	(10)	(18)	(29)	(54)
	M	12.00	11.94	13.80	12.72	13.72	12.20
	SD	5.17	4.73	6.56	7.10	7.57	5.46
T2	N	not administered					
	M						
	SD						
T3	N	(29)	(25)	(14)	(15)	(43)	(50)
	M	12.90	12.48	15.36	16.07	13.00	11.96
	SD	5.68	5.00	7.00	6.78	6.94	6.44
T4	N	(33)	(35)	(11)	(14)	(47)	(50)
	M	12.09	13.14	16.64	12.79	12.83	11.88
	SD	5.28	6.49	6.96	7.25	7.37	5.02

Table 13 cont.

Psychometric Test Scores

MAACL Hostility: State

		BC	BI	LC	LI	MC	MI
T1	N	(35)	(35)	(15)	(20)	(53)	(54)
	M	9.34	8.94	10.27	9.20	8.36	8.44
	SD	3.58	3.78	2.86	4.87	3.37	3.37
T2	NN	(33)	(32)	(15)	(20)	(51)	(56)
	M	8.51	6.66	9.47	7.15	7.37	7.20
	SD	4.09	3.63	3.40	4.08	3.25	3.33
T3	N	(29)	(26)	(14)	(17)	(47)	(51)
	M	7.65	7.88	8.43	6.94	7.28	6.59
	SD	3.96	3.23	5.29	3.75	3.44	3.68
T4	N	(34)	(35)	(12)	(14)	(49)	(51)
	M	6.97	7.26	8.92	6.79	7.10	6.41
	SD	2.75	3.61	3.89	4.32	3.39	3.11

MAACL Hostility: Trait

		BC	BI	LC	LI	MC	MI
T1	N	(21)	(34)	(10)	(18)	((29)	(54)
	M	5.86	6.82	7.50	7.67	7.14	6.30
	SD	3.26	3.60	2.91	4.52	3.78	3.05
T2	N	not administered					
	M						
	SD						
T3	N	(29)	(25)	(14)	(15)	(43)	(50)
	M	6.93	6.96	7.36	6.93	7.53	6.40
	SD	3.27	2.73	4.57	4.37	3.95	3.79
T4	N	(33)	(35)	(11)	(14)	(47)	(50)
	M	6.51	6.46	8.09	6.86	7.30	6.38
	SD	3.10	3.27	3.75	4.15	4.00	2.86

Table 13 cont.

Psychometric Test Scores

Langner Psychiatric Impairment Scale

		BC	BI	LC	LI	MC	MI
T1	N	(34)	(36)	(14)	(20)	(53)	(56)
	M	2.76	2.75	2.71	3.05	3.04	2.29
	SD	2.09	2.78	2.36	3.26	2.59	2.26
T2	N	not administered					
	M						
	SD						
T3	N	(30)	(26)	(14)	(18)	(47)	(51)
	M	2.83	2.54	2.71	3.05	2.87	1.98
	SD	2.35	2.90	2.37	2.46	2.96	3.04
T4	N	(34)	(35)	(12)	(15)	(49)	(51)
	M	2.82	3.46	2.75	3.27	2.51	1.76
	SD	2.73	3.52	2.38	3.71	2.44	2.00

Health Locus of Control

		BC	BI	LC	LI	MC	MI
T1	N	(33)	(36)	(14)	(20)	(52)	(55)
	M	39.94	39.94	37.50	41.30	37.79	39.51
	SD	8.56	11.07	7.31	8.27	8.21	6.23
T2	N	not administered					
	M						
	SD						
T3	N	(30)	(26)	(14)	(17)	(47)	(51)
	M	42.07	40.04	43.29	41.59	39.06	39.37
	SD	8.40	10.21	8.24	8.08	9.28	5.96
T4	N	(34)	(35)	(12)	(14)	(49)	(50)
	M	40.59	42.63	43.67	38.36	38.22	39.36
	SD	7.31	13.90	9.34	5.31	8.55	6.52

Table 13 cont.

Psychometric Test Scores

Holmes Schedule of Recent Events

		BC	BI	LC	LI	MC	MI
T1	N	(35)	(36)	(16)	(20)	(53)	(56)
	M	4.49	4.47	4.06	4.65	4.66	5.41
	SD	3.36	3.60	2.62	2.23	3.26	3.43
T2	N	not administered					
	M						
	SD						
T3	N	not administered					
	M						
	SD						
T4	N	(32)	(34)	(12)	(15)	(48)	(49)
	M	4.81	4.91	5.58	7.33	4.92	5.02
	SD	2.63	3.21	2.78	2.84	2.87	2.95

Table 13 cont.

Psychometric Test Scores

People Test - Total Number of People Named

		BC	BI	LC	LI	MC	MI
T1	N	(33)	(34)	(15)	(20)	(51)	(56)
	M	9.12	10.59	7.93	9.20	10.92	10.38
	SD	3.97	3.35	3.51	4.07	3.75	3.74
T2	N	(32)	(36)	(15)	(20)	(51)	(54)
	M	9.44	10.86	9.00	9.95	10.49	11.00
	SD	3.35	4.13	4.42	3.99	3.73	4.26
T3	N	(29)	(26)	(14)	(18)	(46)	(51)
	M	8.52	9.31	9.14	8.50	10.28	10.22
	SD	3.84	4.42	4.99	4.44	4.25	4.00
T4	N	(33)	(35)	(12)	(14)	(49)	(51)
	M	8.52	8.09	9.83	9.79	9.86	10.67
	SD	3.87	3.81	4.76	5.07	4.09	4.14

People Test - Total Number of Peers Named

		BC	BI	LC	LI	MC	MI
T1	M	31.30	20.62	14.07	15.55	22.55	24.82
	SD	22.52	23.05	13.54	20.11	22.58	24.47
T2	M	30.78	28.94	36.00	13.05	26.39	21.65
	SD	26.30	22.53	23.37	23.39	23.57	26.27
T3	M	35.93	21.73	26.57	26.33	24.35	32.18
	SD	29.37	20.62	29.01	26.21	30.45	27.94
T4	M	36.73	32.83	38.67	25.64	26.22	25.26
	SD	29.51	26.18	34.42	26.08	24.55	24.21

Table 13 cont.

Psychometric Test Scores

People Test: Percentage of Family Named

		BC	BI	LC	LI	MC	MI
T1	M	44.48	42.32	41.13	41.50	42.04	48.89
	SD	24.92	28.85	28.22	26.94	27.13	26.26
T2	M	38.53	34.58	37.60	39.30	37.73	41.48
	SD	21.85	23.54	26.38	35.70	27.35	25.31
T3	M	47.59	38.42	37.71	53.94	36.57	36.57
	SD	29.07	30.60	35.71	31.22	29.59	24.58
T4	M	36.48	36.57	26.17	32.79	39.18	35.69
	SD	31.33	25.28	21.22	29.39	26.78	27.54

People Test - Percentage of Work Related Persons Named

		BC	BI	LC	LI	MC	MI
T1	M	2.73	3.26	7.13	3.05	7.41	7.07
	SD	7.54	7.49	10.29	6.70	16.25	16.48
T2	M	4.06	6.72	1.40	3.10	5.35	6.09
	SD	11.03	14.96	3.92	7.98	11.60	11.51
T3	M	3.97	19.62	14.57	4.94	23.89	16.24
	SD	12.73	30.10	30.64	12.14	33.38	27.10
T4	M	11.64	19.63	18.17	22.21	21.29	29.80
	SD	26.69	27.32	32.13	34.39	29.60	33.62

Table 14

Employment Status

T1

	BC	BI	LC	LI	MC	MI
unemployed	0	3	0	2	1	2
ill	0	0	0	0	0	0
school	0	1	0	0	1	0
retired	5	8	1	6	4	4
household	11	7	4	1	11	8
employed	15	15	10	9	32	31
part time employed	4	2	1	3	4	11

T4

	BC	BI	LC	LI	MC	MI
unemployed	3	1	1	1	4	3
ill	0	3	2	2	2	0
school	1	0	0	0	1	0
retired	6	8	0	6	6	4
household	12	8	3	1	11	8
employed	11	13	4	5	23	29
part time employed	1	3	2	0	2	7

Table 15

Intercorrelations of Sum Problems
and Mean Severity Weights

Control:

	T1 $\bar{X}$W	T2 SP	T2 $\bar{X}$W	T3 SP	T3 $\bar{X}$W	T4 SP	T4 $\bar{X}$W
T1 SP**	.17	.61	.28	.57	.34	.53	.26
T1 $\bar{X}$W***		.13	.46	.03	.36	.05*	.39
T2 SP			.36	.57	.30	.58	.34
T2 $\bar{X}$W				.19*	.58	.17*	.57
T3 SP					.38	.78	.09*
T3 $\bar{X}$W						.30	.50
T4 SP							.25

Intervention:

	T1 $\bar{X}$W	T2 SP	T2 $\bar{X}$W	T3 SP	T3 $\bar{X}$W	T4 SP	T4 $\bar{X}$W
T1 SP	.15	.51	.25	.40	.31	.30	.13*
T1 $\bar{X}$W		.19	.23	.23	.34	.20	.35
T2 SP			.31	.24	.12*	.19*	-.07
T2 $\bar{X}$W				.24	.36	.22	.28
T3 SP					.55	.62	.26
T3 $\bar{X}$W						.40	.49
T4 SP							.45

* Correlations not significant at least $p < .05$ - $p < .001$

** Sum Problems

*** Mean Severity Weights